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ABSTRACT

A selection of papers on Asian population trends and educational development is presented in four parts. Part I defines the major components of Asian population growth as the rapid decline in mortality after 1945, relative increases in the population of less developed regions, accelerated fertility potential, and unequal distribution of wealth. Education is characterized by unequal opportunity and a high dropout rate in primary grades. Part II views rapid population growth as an obstacle to progress and discusses the shortage of capital, the employment dilemma, rising costs of services, social development, and the difficulties of setting educational priorities. Case studies are presented which focus on educational expansion and equality in Japan, Sri Lanka, Pakistan, Thailand, and Singapore. Part III focuses on rural-urban migration and highlights the problems of this migration with case studies of India, Japan, and Indonesia. Part IV discusses the need for educational innovation and suggests that planners redefine educational objectives more democratically. This section discusses international cooperation in education, radical policies for rural areas, local input into the educational system, and the importance of family planning. A selected bibliography is included. (Author/DB)

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population dynamics and educational development

a selection of papers presented at the regional seminar of experts on population dynamics and educational planning, held at the Unesco Regional Office for Education in Asia, Bangkok, 10-18 September 1973

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Note: **The former Economic Commission for Asia and the Far East (ECAFE) is now the Economic and Social Commission for Asia and the Pacific (ESCAP). The papers published in this book were prepared prior to that change and the earlier name of ECAFE has been retained herein.**

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PART ONE

DEMOGRAPHIC AND EDUCATIONAL TRENDS IN ASIA

DEMOGRAPHIC AND EDUCATIONAL TRENDS IN ASIA

A. Demographic Trends

I. Introduction

Since the First Asian Population Conference was held in 1963, there have been significant developments in the demographic situation of the ECAFE region. One major aspect of these developments is the progress in the field of population policy and planning. Greater recognition of the adverse effect of rapid growth of population on national development and on the standard of living of the individual family has led to a revolution in the formulation of population policies and family planning activities in countries of the region.

Nevertheless, development planning and population planning continue to be separate spheres. There is no close co-ordination between population planning and planning for health services, education, housing, employment, industry, agriculture, trade, development of natural resources, transport and communication and other sectors of development. Similarly, the effect of economic and social development on the components of population growth has received very little attention, and population is being used merely as a denominator in the per capita income and consumption equations.

Although recognition of the important interrelation between population and developmental factors is emerging among demographers, family planners and economic planners, no common approach has yet been developed. The absence of such an approach is not only giving rise to an imbalance between population growth and economic development, but has led to the emergence of new problems of ecological imbalance. In order to create more favourable conditions for development, it is important that due priority be given to this interrelationship in the formulation and implementation of development plans. It is in this context that the demographic situation in the region should be viewed.

Prepared by the Unesco Secretariat as a synopsis of two papers presented to the Seminar: "The Demographic Situation in the ECAFE Region" by ECAFE Secretariat, and "Educational Trends in Asian Countries" by Unesco Secretariat.

II. World and regional population trends: a century of growth

The nineteenth century was a century of demographic revolution in Europe but its estimated 1800 population took more than 100 years to double. Although the demographic transition in Europe began during the late eighteenth century, average annual rates of growth for the periods 1800-1850 and 1850-1900 were as low as 0.5 and 0.8 per cent, respectively. In spite of such low increments the nineteenth century was regarded as a period of declining mortality rates and rising growth rates in Europe, a problem roughly similar, though different in magnitude, to that being experienced by the ECAFE region in this century.

The region which is now the ECAFE region was, during the nineteenth century, still characterized by high fertility and high mortality, and its population increased by only 50 per cent to about 915 million by 1900. Comparing nineteenth-century Europe with twentieth-century ECAFE region, the estimated annual rates of growth in the latter for the periods 1900-1950 and 1950-2000 are 0.7 and 2 per cent, respectively.

Recent United Nations estimates show that the more developed regions of the world during the period 1800 to 1850 had a crude birth rate of 39 and a crude death rate of 32, and for the period 1850 to 1900 a crude birth rate of 38 and a crude death rate of 29. The corresponding estimates for the less developed regions for the period 1900 to 1950 are 41 and 32, and for 1950 to 2000, 37 and 14. The major difference occurs in the crude death rate which has begun to decline more rapidly in the less developed regions in the second half of this century than in the developed regions in the second half of the last century. The rate of natural increase in the less developed regions for the period 1950 to 2000 is thus estimated at 2.3 per cent per annum as compared to 0.9 per cent per annum of the more developed regions for the period 1850 to 1900.

The 1970 population of the ECAFE region was estimated at 1,994 million and is currently approaching 2,100 million. At the beginning of the century its population was 915 million; by the end of the century it is estimated to be 3,569 million, implying a four-fold increase and a net addition of 2,654 million. The two major sub-regions with respect to population in the ECAFE region—and in the world—are East Asia and South Asia [1]. They have different population growth trends. At the beginning of the century East Asia had 85 million more people than South Asia's population of 412 million, but in 1960 the latter region was 27 million ahead of the former, and by 2000 it is expected that South Asia will have about 700 million more people than East Asia. It is not this reversal, but the sheer size of the population of South Asia - 2,128 million in the year 2000-which provides a great challenge to national and international planners, scientists and administrators.

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[1] South Asia, as used in this paper, does not include South West Asia. For definitions See Table 1, note 3.

Table 2 shows the percentage increases of population during the period 1900 to 2000, by decades and for the entire century. The difference between the more and less developed regions of the world is striking. The population of the more developed regions during this period will increase by 158.7 per cent, as compared with 365.2 per cent of the population of the less developed regions. It should be noted that, whereas the population of Europe did not even double itself in the last century, the population of the ECAFE region is likely to quadruple by the end of the present century.

The sub-regions of East, Middle South and South East Asia, constituting the Asian part of the ECAFE region, with their many acute developmental problems, contain over half the world's population. These sub-regions are more meaningful for understanding the population problems of the region. The population of South Asia and the Oceania regions is likely to increase five-fold or more while that of East Asia will have tripled by the end of the century. By the year 2000 the number of inhabitants in the ECAFE region will almost equal the total for the world in 1970. This will occur in spite of significantly slower growth in East Asia, a trend which reflects the success achieved by China, Hong Kong, Japan and the Republic of Korea in reducing their rates of growth.

Rapid increase in the less developed regions in general and in the ECAFE region, in particular, is anticipated during the remainder of the century, according to the medium variant population projections prepared by the United Nations Secretariat. One might however argue that, given the current upsurge in family planning activities in the region, the population is likely to increase more moderately and may not exceed 3,500 million by the end of the century.

Therefore, an alternative exercise[1] has been undertaken by the ECAFE Secretariat, based on a more optimistic view with regard to

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[1] Referred to as Series B hereunder, in contrast to Series A which reflects projections made by the United Nations Population Division.

Table 1. Population of the world and major regions, 1900-2000
(population in millions)

World and regions	1900	1920	1930	1940	1950	1960	1970	1980	1990	2000
World total	1,650.0	1,859.9	2,068.6	2,295.0	2,485.7[a]	2,981.6[a]	3,635.2[a]	4,467.3[a]	[a]	6,515.0[a]
More developed [1]	562.0	672.6	757.9	820.7	857.8[a]	976.2[a]	1,090.6[a]	1,210.2[a]	[a]	1,454.0[a]
Less developed [2]	1,088.0	1,187.3	1,310.8	1,474.3	1,627.9[a]	2,005.4[a]	2.544.6[a]	3,257.1[a]	[a]	5,061.0[a]
Africa	133.0	142.9	163.8	191.5	217.3	269.6	344.5	456.7	616.0	818.0
Americas	156.0	205.2	241.6	274.2	328.4	412.1	510.8	637.8	799.0	985.0
Latin America	(74.0)	(89.6)	(107.4)	(129.8)	(162.4)	(213.4)	(283.3)	(377.2)	(500.0)	(652.0)
Northern America	(82.0)	(115.7)	(134.2)	(144.3)	(166.1)	(198.7)	(227.6)	(260.7)	(299.0)	(333.0)
Asia	925.0	1,023.1	1,120.2	1,244.4	1,355.3	1,645.4	2,055.8	2,581.1	3,177.0	3,778.0
Europe	296.0	324.8	353.9	378.9	392.0	424.6	462.1	497.1	533.0	568.0
Oceania	6.0	8.5	10.0	11.1	12.6	15.8	19.4	24.0	30.0	35.0
USSR	134.0	155.3	179.0	195.0	180.1	214.2	242.6	270.6	302.0	330.0
ECAFE region										
ECAFE region	914.7	1,001.5	1,097.2	1,216.0	1,321.2	1,600.0	1,994.3	2,496.1	3,037.0	3,568.5
Asian part [3]	908.7	993.2	1,087.4	1,205.4	1,308.8	1,584.7	1,975.5	2,472.9	3,008.7	3,535.7
East Asia	496.6	552.7	590.5	633.5	656.1	779.0	928.6	1,093.8	1,255.0	1,407.3
Japan	43.8	55.4	63.9	71.4	82.9	93.2	103.5	116.3	125.1	132.8
Mainland and other	452.8	497.3	526.6	562.1	573.1	685.8	825.1	977.4	1,129.9	1,274.6
South Asia	412.1	440.5	496.9	571.9	652.8	805.7	1,046.9	1,379.1	1,753.7	2,128.4
Middle South	311.5	333.0	370.7	422.0	480.6	588.2	761.5	1,000.7	1,264.5	1,523.8
South East	100.6	107.5	126.3	149.9	172.2	271.5	285.4	378.5	489.1	604.5
Oceania part [3]	6.0	8.3	9.8	10.7	12.3	15.3	18.8	23.2	28.4	32.8
Australia and New Zealand	4.5	6.6	8.0	8.7	10.1	12.7	15.4	18.8	22.6	25.8
Other Oceania	1.5	1.6	1.8	2.0	2.2	2.6	3.4	4.4	5.7	6.9

Source: For world and regions: For 1900, Durand, J.D. "Expansion of World Population," *Proceedings of the American Philosophical Society*, Vol. III, No. 3, June 1967, p. 137; for 1920-1940, *World Population Prospects as Assessed in 1963*, United Nations publication, Sales No. 66. XIII. 2, p. 133. For 1950-2000, reference has been made to internal working paper of the United Nations Population Division, "Urban and rural population: individual countries 1950-1985 and regions and major areas 1950-2000." ESA/P/WP.33/Rev. 1, September 1970.

For ECAFE region, data for 1900 have been estimated by the ECAFE Population Division with reference to the above sources, except for Japan for which reference was made to Bureau of Statistics, Office of the Prime Minister, *Japan Statistical Yearbook, 1971* (Tokyo, 1972).

Note: Because of rounding, totals are not in all cases the sum of the parts.

1/ Including Europe, USSR, Northern America, Japan, temperate South America, Australia, New Zealand.

2/ Including East Asia except Japan, South Asia, Africa, Latin America less temperate South America, and Oceania less Australia and New Zealand.

3/ Countries of the sub-regions of the ECAFE region follow:

Mainland and other	China, Hong Kong, Mongolia, Democratic People's Republic of Korea and Republic of Korea.
Middle South Asia	Afghanistan, Bangladesh, Bhutan, India, Iran, Nepal, Pakistan, Sri Lanka.
South East Asia	Brunei, Burma, Khmer Republic, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand, Republic of Viet-Nam and Democratic Republic of Viet-Nam.
Other Oceania	British Solomon Islands, Cook Islands, Fiji, Nauru, Papua New Guinea, Tonga, Western Samoa.

a/ Not adjusted for discrepancies in international migration data. For 1960, with adjustments, world total is given as 2,986 million, less developed regions as 2,010 million and Asia as 1,650 million, the difference of 5 million occurring for Mainland East Asia.

Table 2. Population of the world and major regions, percentage increase, 1900-2000

Regions	1900-1920	1920-1930	1930-1940	1940-1950	1950-1960	1960-1970	1970-1980	1980-1990	1990-2000	1900-1950	1950-2000	1900-2000
World total	12.7	11.2	10.9	8.3	20.0	21.9	22.9	22.1	19.4	50.6	162.1	294.8
More developed	19.7	12.7	8.3	4.5	13.8	11.7	11.0	10.5	8.8	52.6	69.5	158.7
Less developed	9.1	10.4	12.5	10.4	23.2	26.9	28.0	26.5	22.8	49.6	210.9	365.2
Africa	7.5	14.6	16.9	13.5	24.0	27.8	32.6	34.9	32.8	63.4	276.4	515.0
Americas	31.6	17.7	13.5	19.8	25.5	24.0	24.9	25.3	23.3	110.5	199.9	531.4
Latin America	21.1	19.9	20.9	25.1	31.4	32.7	33.2	32.6	30.4	119.4	301.5	781.1
Northern America	41.1	16.0	7.6	15.1	19.6	14.5	14.5	14.7	11.4	102.5	100.5	306.1
Asia	10.6	9.5	11.1	8.9	21.4	24.9	25.6	23.1	18.9	46.5	178.7	308.4
Europe	9.7	9.0	7.1	3.4	8.3	8.8	7.6	7.2	6.6	32.4	44.9	91.9
Oceania	42.0	17.9	10.1	13.7	25.3	22.9	24.0	24.9	16.7	109.6	178.4	483.3
USSR	15.9	15.3	8.9	-7.7	19.0	13.2	11.6	11.6	9.3	34.4	83.3	146.3
ECAFE region												
ECAFE region	9.5	9.6	10.8	8.6	21.1	24.7	25.2	21.7	17.5	44.4	170.1	290.1
Asian part	9.3	9.5	10.8	8.6	21.1	24.7	25.2	21.7	17.5	44.0	170.1	289.1
East Asia	11.3	6.8	7.3	3.6	18.7	19.2	17.8	14.7	12.1	32.1	114.5	183.4
Japan	26.3	15.3	11.8	16.2	12.4	11.0	12.4	7.5	6.1	89.1	60.1	202.8
Mainland and other	9.8	5.9	6.7	2.0	19.7	20.3	18.5	15.6	12.8	26.6	122.4	181.5
South Asia	6.9	12.8	15.1	14.1	23.4	30.0	31.7	27.1	21.4	58.4	226.1	416.5
Middle South Asia	6.9	11.3	13.3	13.9	22.4	29.5	31.4	26.4	20.5	54.3	217.1	389.2
South East Asia	6.9	17.4	18.7	14.8	26.3	31.3	32.6	29.2	23.6	71.1	251.2	500.9
Oceania part	38.2	17.9	9.5	15.5	24.0	22.6	23.6	22.2	15.6	106.1	165.5	447.2
Australia and New Zealand	46.4	20.4	9.0	16.2	25.3	21.2	22.2	20.5	14.1	123.3	155.2	69.9
Other Oceania	12.4	8.0	11.6	12.5	17.9	29.6	30.2	29.4	21.4	52.4	212.5	376.4

Sources: see Table 1.

reducing population growth rates, and taking due account of the objectives of family planning programmes of various countries in the region. In essence, it was assumed that, by the last decade of this century, average annual population growth rates would be reduced to 0.7 per cent for the Asian part, and to 1.1 per cent for the Oceania part of the ECAFE region. The results of this exercise show that even if great success is achieved through the expected breakthrough in science and contraceptive technology, the population of the ECAFE region by the end of the century will still exceed 2,800 million, more than double the 1950 population. Accordingly, even if all resources and efforts are mobilized, the growth of population will still be significant.

While lack of space does not allow detailed exposition of population projections by individual countries, some highlights for a few countries may be useful.

The current population of China, the largest unit in the region and in the world, is estimated at about 800 million. It was estimated to be 540 million in 1950, reaching 1,178 million by the year 2000 under series A, and 954 million under series B. Currently China has more than one-third of the total population of the region. The current population of India, the second largest unit in the region and in the world, is estimated at 586 million under series A and 563 million under series B, as against 359 million in 1950. In the year 2000 the estimates are 1,081 million under series A and 834 million under series B. Currently India has more than one fourth of the total population of the region. Indonesia is the third most populous country in the region, and the fifth most populous in the world. Its current population is estimated at 129 million under series A and at 122 million under series B, and by the year 2000 its population may increase to 262 million under series A and 186 million under series B. The fourth most populous in the region is Japan. Its current population estimate under both the series is placed at 106 million. In 1950 Japan had a population of 83 million, and the estimates for the year 2000 under the two series are 133 million and 128 million. It will be noted that in 1950 Japan had 6 million more people than Indonesia. In 1960, however, the Indonesian population exceeded Japan's population by about a million, and it is estimated that by the year 2000 Indonesia may have twice as many inhabitants as Japan.

The foregoing summary of past and projected population trends suggests that the rapid decline in mortality during the past two decades has made a substantial contribution to population growth in the countries of the region, and that, where there has been a decline in fertility, it has generally not been sufficient to offset the decline in mortality.

A more detailed description of the situation with regard to changes in fertility and mortality rates is given in the next section. The population growth trends in the countries of the region indicate the urgency of the problem and the need for policy-makers, planners, administrators and researchers to co-ordinate their activities, as it is by mutual support and co-operation that a realistic solution to the people's problems will be achieved.

III. Components of population growth

Because vital registration systems in most developing countries of the region are less developed than their censuses, reliable data on fertility and mortality are more scanty than data on population size, growth, distribution and age composition. The situation with regard to statistics on internal and international migration is even more unsatisfactory. The presentation in this section on fertility and mortality trends and levels is therefore based on scattered and sketchy evidence.

Fertility levels and trends

Recent estimates for the period 1950-2000, as given in Table 3, show that during the period 1950-1970 the crude birth rate in the less-developed regions was almost twice as high as that in the more developed regions. During the period 1960-1970, although there was a small decline in both, the difference further widened.

Table 3. Estimated projected crude birth rates of selected regions and sub-regions, 1950 to 2000

	1950-1960	1960-1970	1970-1980	1980-2000
More developed regions	22	20	19	18
Less Developed regions	43	41	38	31
East Asia (excl. Japan)	39	35	29	22
Middle South Asia	47	45	42	31
South East Asia	46	44	41	32
Japan	21	18	18	15

Source: *The World Population Situation in 1970*, United Nations publication. Sales No.: E.71. XIII. 4, Table 5.

Of the three Asian sub-regions, East Asia shows the lowest fertility and a greater decline for the period 1950-2000 than Middle South Asia or South East Asia. Japan is listed separately in this table because it is the only country in Asia which has completed its demographic transition.

In general, data on age at marriage are not available for most countries of the region. But the actual age at marriage in countries where fertility is declining, is increasing and education seems to be the major factor in this change. For example, the average age at marriage is considerably higher than the legal minimum age at marriage for both sexes in Japan and the Republic of Korea. Sri Lanka is another example, where education and increase in age at marriage seem to have played an important role in the declining birth rate.

With regard to achievements in fertility regulation, the current position is summarized in Table 4. Countries which are making significant progress at present contain 47 per cent of the total population of the region, as shown in categories I and II. It is noteworthy that, with the exception of China and the Republic of Korea, about which official information has not come to hand, all of these countries have satisfactory vital statistics. Although almost all countries, even those in category V, have some activities in family planning, half of the region's population lives in countries which have made no significant progress.

Mortality levels and trends

It is the rapid decline in mortality following the Second World War which has changed the course of demographic history. Recent estimates for the period 1950 to 2000, as given in Table 5, show that the decline in the crude death rate (CDR) during the period 1950 to 1970 was higher in the less developed regions than in the more developed regions. It is anticipated that if food supply and other necessities of subsistence keep pace with increase in numbers, by the year 2000 the less developed regions will have achieved a lower level of mortality rate than the more developed regions. The slight difference results from the higher proportion of young ages in the former regions. For East Asia, Middle South Asia and South East Asia, it is estimated that the declines in the crude rate will be at least 60 per cent over the period 1950-2000, whereas the decline in the CBR of these sub-regions, as shown in Table 3, could be at the most 45 per cent. This implies that the rate of national increase, except in East Asia, might even rise between 1950 and the year 2000.

Table 4. Fertility level and population increase in countries of the ECAFE region, classified by achievements in fertility regulation

Classification and countries	Current CBR level[a]	Share of region's population in 1972 (per cent)	Projected population increase, medium variant 1970-2000		
			Numbers (millions)	Percentage	Annual rate
Total all countries		100.0	1,574.0	78.9	2.0
I. Low level of fertility achieved: Australia, China, Hong Kong, Japan, New Zealand, Singapore	19-22[b]	44.5	448.3	49.9	1.4
II. Noticeable lowering of fertility being experienced: Fiji, Republic of Korea, Malaysia, Sri Lanka	30-34	2.8	48.5	86.6	2.1
III. Programmes established but effect on fertility not clearly measurable: Bangladesh, India, Pakistan	37-44	35.0	690.8	99.9	2.3
IV. Programmes in early stages: Indonesia, Iran, Nepal, Philippines, Thailand	44-50	12.0	282.0	120.0	2.7
V. No announced policy and programme or no available information: Afghanistan, Bhutan, British Solomon Islands, Brunei, Burma, Cook Islands, Khmer Republic, Democratic People's Republic of Korea, Laos, Mongolia, Nauru, Papua New Guinea, Tonga, Republic of Viet-Nam, Democratic Republic of Viet-Nam, Western Samoa	35-50	5.7	104.4	92.5	2.2

[a] Assessed after consulting various sources.

[b] This range might be different if information on China had been available at the time of writing.

Table 5. **Estimated and projected crude death rates, selected regions and sub-regions of the world, 1950-2000**

	1950-1960	1960-1970	1970-1980	1980-2000
More developed regions	10	9	9	10
Less developed regions	22	17	13	9
East Asia (excl. Japan)	21	16	13	9
Middle South Asia	27	19	14	9
South East Asia	23	18	13	8
Japan	9	7	7	9

Source: The World Population Situation in 1970. United Nations publication. Sales No.: E.71. XIII. 4, Table 6

IV. Age composition

Reliable data by sex and age are urgently needed to divide populations into sub-groups for the preparation of development plans and family planning programmes. In many developing countries of the region, however, information on sex composition is affected by sex-selective under-enumeration, and data on age are often inaccurate and deficient. Although attempts are being made to improve the quality of data, progress is slow and deserves the special attention of governments.

Table 6 shows the estimated age composition of the total population of the ECAFE region in selected broad age groups for 1970 and 1980.

It is estimated that the number of pre-school-age children will grow by about 50 million by the end of the current decade, increasing the 1970 figure of 306 million to 356 million in 1980. The gain in this age group is of special concern to those providing for health services and future development. As a substantial proportion of these children in developing countries of the region are already suffering from malnutrition, a further increase in their number deserves special consideration.

The estimated population of school-age children (5-14 years) is 484 million in 1970 and will expand to 609 million in 1980, adding 125 million over the period of a decade. This increase, amounting to 25.8 per cent, will be greater than the relative growth of the total population. Such a large addition in the number of school-age children in a region in which school enrolment ratios are already low will place a severe burden on the meagre resources of developing countries.

Table 6. Age composition of population of the ECAFE region, 1970 and 1980 (millions)

	Total[a]	0-4	5-14	0-14	15-24	15-49	15-59	60 and over	Dependents
1970									
Both sexes	1,993	306	484	789	379	961	1,087	117	907
Males	1,009	156	247	403	193	487	551	56	459
Females	983	150	237	386	186	474	536	61	448
1980									
Both sexes	2,494	356	609	965	469	1,206	1,372	158	1,123
Males	1,266	182	311	493	240	613	697	76	569
Females	1,229	174	298	472	229	593	675	82	554
Percentage increase 1970 - 1980									
Both sexes	25.1	16.3	25.8	22.3	23.7	25.5	26.2	35.0	23.8
Males	25.5	16.7	25.9	22.3	24.4	25.9	26.5	35.7	24.0
Females	25.0	16.0	25.7	22.3	23.1	25.1	25.9	34.4	23.6
Percentage age distribution									**Dependency ratio**
1970									
Both sexes	100.0	15.4	24.3	39.6	19.0	48.2	54.5	5.8	83
Males	100.0	15.4	24.5	39.9	19.1	48.3	54.6	5.5	
Females	100.0	15.2	24.1	39.3	18.9	48.2	54.5	6.2	
1980									
Both sexes	100.0	14.3	24.4	38.7	18.8	48.4	55.0	6.[illegible]	82
Males	100.0	14.4	24.6	38.9	19.0	48.4	55.0	6.0	
Females	100.0	14.2	24.2	38.4	18.6	48.3	54.9	6.7	

Source: Medium variant projections prepared by the Population Division of the United Nations (designated as series A in this paper).

[a] These totals do not include population of Bhutan, British Solomon Islands, Cook Islands, Nauru and Tonga, for which age breakdown was not available.

The youth population (15-24) was estimated at 379 million in 1970 and is likely to increase to 469 million by 1980, implying the net addition of 90 million. As existing educational and training facilities in most developing countries of the region are inadequate to meet current demands, this increase will have serious implications for countries in which high rates of underemployment and unemployment already prevail.

The age group 15-49, particularly its female component, deserves special consideration by those concerned with family planning. The net addition of 119 million females of reproductive age is particularly significant, because its relative increase during the decade will be higher than that of the total population. This suggests that the fertility potential will be accelerated by the end of the decade.

The anticipated increase in the population of working age, 15-59, from 1,087 million in 1970 to 1,372 million by the end of the decade is important, as it shows a gain of about 285 million, implying the need for higher capital investment and the creation of additional jobs.

The figures of dependency ratio[1] shown in the last column of Table 6 are higher by about one fourth than those for the more developed regions, implying that, in spite of underemployment, unemployment and low wages, the economically active population will have to bear a heavy burden of dependency.

Finally, the population of older persons, age 60 years and over, will increase from 117 million in 1970 to 158 million in 1980. With the increase in life expectation, this group will grow at a much faster rate than the rest of the population. Significant investments in facilities to meet the needs of older persons and additional funds for their pensions and social security will have to be provided.

V. Population distribution and urbanization

While the concept of planned family size has gained general acceptance, there appears to be only tentative recognition of the value of planning, at the national and sub-national levels, to replace extremely high concentrations, uneconomic dispersion and other forms of maldistribution with a more balanced distribution of population. To accomplish this, data concerning quality of land and resources, distribution of educational facilities, the level of technology, and productivity need to be related to population characteristics and trends, but unfortunately such information is not yet well developed.

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[1] dependency ratio $= \frac{\text{(Population over 59)} + \text{(Population less than 15)}}{\text{Population 15 to 59}}$

Distribution

Average population densities, admittedly crude indicators of distribution, may yield general inferences as to the extent of population pressures. The possibility of loss of good land to urban areas, housing for the growing population in the rural areas, industries, highways and other accompaniments of industrialization is increasing with the increase of population.

Some countries of the region, even excepting Singapore and Hong Kong, are among the most densely inhabited in the world; Bangladesh is the outstanding example. Others may have what seems to be an equitable ratio between population and area, but when arable land is considered, a less favourable picture is presented. Extreme cases are Indonesia, Japan, the Republic of Korea and the Democratic People's Republic of Korea. The problem of maldistribution within each country may even be more serious. For example, the island of Java in Indonesia is one of the most densely settled areas in the world, while several other islands are sparsely populated. Similar examples may be found in other countries.

Urbanization

By the end of the century, the proportion of urban population in the ECAFE region will probably increase from about 25 per cent of the total population in 1970 to about 44 per cent in 2000. Compared with other major regions of the world, this region has a low level of urbanization, but in numbers its urban population exceeds the total population of each of the other continents.

According to Table 7, the estimated total urban population of the ECAFE region in 1970 is 507 million, and this figure is likely to increase to 737 million in 1980 and 1,561 million in 2000. The rural population will increase from 1,487 million in 1970 to 1,759 million in 1980 and 2,007 million in 2000. Although both urban and rural populations will increase, the urban population will increase at a much faster rate and will triple by 2000, while the rural population will grow by only 35 per cent.

Excluding the highly urbanized countries of Japan, Hong Kong and Singapore, the urban proportion in roughly half of the remaining countries will about double by the end of the century, may possibly increase somewhat more steeply in India, Indonesia and Sri Lanka, and may even triple in Bangladesh and Nepal. The increase in the urban proportion for Iran, the Democratic People's Republic of Korea and the Republic of Korea may be 50 per cent, while for China, Pakistan and the Philippines it may be around 65 per cent.

Table 7. Total, urban and rural population estimates and projections, ECAFE region, 1970-2000

	Population (thousands)								
			Urban			Rural			
Year	Total	Average increase %	Number	%	Average increase %	Number	%	Average increase %
Total ECAFE region								
1970	1,994,301		507,455	25.4		1,486,846	74.6	
1975	2,235,041	2.3	604,179	27.0	3.6	1,630,862	73.0	1.9
1980	2,496,108	2.2	737,071	29.5	4.1	1,759,037	70.5	1.5
1985	2,774,517	2.1	905,584	32.6	4.2	1,868,933	67.4	1.2
1990	3,037,015	1.8	1,095,366	36.1	3.9	1,941,649	63.9	0.8
2000	3,568,468	1.6	1,561,491	43.8	3.6	2,006,977	56.2	0.3
Total Asian ECAFE region								
1970	1,975,537		494,461	25.0		1,481,076	75.0	
1975	2,214,190	2.3	589,519	26.6	3.6	1,624,671	73.4	1.9
1980	2,472,908	2.2	720,538	29.1	4.1	1,752,370	70.9	1.5
1985	2,748,696	2.1	886,983	32.3	4.2	1,861,713	67.7	1.2
1990	3,008,661	1.8	1,074,653	35.7	3.9	1,934,008	64.3	0.8
2000	3,535,692	1.6	1,537,012	43.5	3.6	1,998,680	56.5	0.3

Source: Total population projections: Population Projections of United Nations Population Division, medium variant. For 1970 estimates of urban and rural population, reference was made to United Nations, *Growth of the World's Urban and Rural Population, 1920-2000,* New York, 1969; Kingsley Davis, *World Urbanization 1950-1970,* Volume I: *Basic data for Cities, Countries, and Regions;* Institute of International Studies, University of California, Berkeley (1969). Urban and rural population estimates after 1970 are highly conjectural.

In some instances, countries may have rapid urbanization forced upon them, not so much in response to industrial development as from growing pressure of numbers in a relatively small area. In other countries an increase in the numbers of rural inhabitants aggravates underemployment and unemployment, and further depresses general living conditions in the rural areas. The exodus from these areas terminates in urban centres which are already socially and economically inadequate and overcrowded. The scientific understanding of this problem of migration is conditioned by the lack of data, but whatever data are already being made available by the censuses are not being fully utilized to analyse the problems. Another factor which may increase the rate of urbanization is the impact of modern technology on sizable village settlements, transforming them into centres having some of the attributes of urban localities. Such settlements may also be on the fringes of cities and may be absorbed by them.

This brief survey of variations in the pattern of population distribution, and of the problems associated with the increase in urban and rural populations of the region emphasizes the need for "intensive research on individual countries in order to assess the dynamics underlying the urbanization process in each, and the implications for future development".[1]

B. Educational Trends

I. Patterns of quantitative expansion

The unprecedented expansion of education in Asia throughout the sixties has mainly been caused by two factors: mounting pressure of public demand for education that came in the wake of decolonisation and accompanied governments' efforts to speed up human resource development; and, secondly, the unexpected, rapid growth of the population, particularly the school-going age groups.

As a result, enrolment numbers at all levels have grown much faster than even the less conservative projections had envisaged in the early sixties. Table 1 presents country-wise enrolment trends by level of education, calculated in index points to make the picture more comparable. Enrolments have tended to rise more rapidly at the second and third levels than at the first level of education. This has led to a gradually shifting composition of total enrolment - a process which, in itself, inevitably increases overall expenditure, because unit costs at secondary and higher levels are conspicuously higher than in primary education.

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[1] Report of *Regional Seminar on Ecological Implications of Rural and Urban Population Growth*, 25 August - 3 September 1971, ECAFE POP/APC.2/BP/11.

Whether, on the whole, the population growth factor or the increasing demand for education within school-going age groups have contributed more to the "student explosion," is not easy to determine. Demographic pressure as a cause of quantitative educational expansion apparently differs in weight from country to country and from elementary to higher levels of education. For all countries of Table 1 combined, a computed value of r = 0.28 for Spearman's rank correlation coefficient would suggest a positive, but hardly significant correlation between the 1960-1970 increase of primary enrolment and the corresponding increase of the population aged 5-9 years. However, when calculated for the second and third level, this correlation does not hold, as the influence of relative demand factors begins to outweigh population growth factors as a cause of educational expansion.

The quantitative expansion of educational systems in Asian countries has also been reflected in rapid increases of public expenditure on education. For the whole region, educational expenditure rose by an average annual rate of 7.2 per cent between 1960 and 1968. Table 2 demonstrates that this implied mounting claims on Gross National Products. Expenditure projections according to the Asian Model [1], as given in Table 2, imply that all countries of the region will have to cope with a continued expansion of educational expenditure in the decade ahead.

As educational planners in Asian countries look at the decade ahead, there is little prospect that the quantitative expansion of education will reach a saturation level in the near future. The forces which have been at the heart of this expansion in the recent past are likely to continue their influence or, indeed, to gain in momentum. This is true of relative demand for education which is bound to be accelerated further, as those who have received a basic education in the past will claim more and better education for their children. It is equally true of the population growth factor, considering the slow progress of family planning programmes in many Asian countries, the growing share of younger age brackets in the population, and the considerable scope for further reductions of infant mortality.

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1. *An Asian Model of Educational Development*, Second Regional Conference of Ministers of Education and Those Responsible for Economic Planning, Bangkok, 1965.

Table 1. Enrolment trends by country, 1960, 1965, 1970: index points

	First Level			Second Level			Third Level		
	1960	1965	1970	1960	1965	1970	1960	1965	1970
Afghanistan	100	204	308	100	279	735	100	205	440
Bangladesh	100	125	161 (69)	100 1)	194 1)	293 1)	100	246	507
Burma	100	140	208 (69)	100	159	262 (69)	100	187	342
India	100	144	166	100 1)	150 1)	196 1)	100	158	285
Indonesia	100	129	150	100	190	250	100	170	205 (69)
Iran	100	153	204 (69)	100	174	314 (69)	100	146	339 (69)
Japan	100	78	75	100	121	98	100	156	214
Khmer Republic	100	140	180 (68)	100 1)	229 1)	337 1) (68)	100	426	642 (68)
Korea, Republic of	100	136	159	100	137	221	100	140	200
Laos	100	162	219 (69)	100	242	354 (69)	100	324	561 (69)
Malaysia (West)	100	109	126	100	213	322	100	165	184 (69)
Mongolia	100	143	200	100	140	197 (69)	100	214	175 (69)
Nepal	100	257	300 (69)	100 1)	150 1)	245 1) (69)	100	171	364 (69)
Pakistan	100	153	204 (69)	100	153	209 (69)	100	196	308 (69)
Philippines	100	138	176 (69)	100	159	225 (69)	100	178	226 (69)
Singapore	100	126	128	100	191	238	100	118	133
Sri Lanka	100	110	114 (69)	100	150	153 (69)	100	212	215 (69)
Thailand	100	118	141	100	126	187 (69)	100	105	140
Viet-Nam, Republic of	100	130	188 (69)	100 1)	182 1)	310 1)	100	230	400 (69)

Source: Progress of Education in the Asian Region, Statistical Supplement, Unesco Regional Office for Education in Asia, Bangkok 1972. 1) Secondary general education only.

Table 2. Recent trends of public expenditure on education as per cent of G.N.P., and projections to 1980 according to the Asian Model (I: 4% growth of G.N.P., II: 7% growth of G.N.P.)

Country*	Recent trends						.... and prospective developments		
	1960	1965	1966	1967	1968		1970	1975	1980
Afghanistan	....	....	....	....	....	Group "A" Countries	I: 1.60 II: 1.51	2.41 1.97	3.54 2.52
Laos	....	....	....	....	....				
Nepal	....	0.6	0.5	0.6	....				
Burma	1.9	2.7	....	2.9	....	Group "B" Countries	I: 3.75 II: 3.54	4.77 3.91	5.91 4.20
India	2.3	2.6	2.5	....	....				
Indonesia	0.7	....	....	....	....				
Iran	....	2.5	2.4	2.7	3.3				
Khmer Republic	....	3.7	4.2	....	....				
Mongolia	....	....	....	....	....				
Pakistan 1/	0.9	1.5	1.2	1.3	1.4				
Viet-Nam, Republic of	1.0	1.9	....	1.1	....				
Korea, Republic of	....	1.8	2.0	2.4	3.6	Group "C" Countries	I: 4.27 II: 4.04	4.69 3.84	5.15 3.66
Malaysia 2/	3.4 3/	3.5	3.5	5.0	5.6				
Philippines	2.6	2.6	2.8	2.8	3.1				
Singapore	....	4.3	....	4.1	3.7				
Sri Lanka	4.3 3/	4.1	4.3	4.4	....				
Thailand	....	3.1	....	3.1	3.3				

Source: a) Unesco, *Statistical Yearbook*
b) Unesco, *Growth and Change: Perspectives of Education in Asia,* Educational Studies and Documents, No. 7, Paris, 1973.

Notes: * Grouped as in the *Asian Model*
1/ Including data for Bangladesh
2/ Actual data refer to West Malaysia only
3/ 1961

The major problem emerging from these quantitative trends seems to be this: can the rapid expansion of education in terms of numbers and financial resources still be regarded as a positive stimulus to the development of other sectors and the society at large, or will disproportionate emphasis on education eventually distort the balance between progress of single sectors and overall development in Asian countries? Growing budgetary tensions with other ministries may set in. Already, educational systems tend to produce more graduates than the economies of most developing countries in Asia can absorb. The ensuing problem of educated unemployed implies serious consequences for social integration, economic progress, and political stability. On the other hand, it is obvious that in the absence of radical, cost-reducing reforms the share of educational expenditure in Gross National Products will have to continue to expand if important educational goals are to be attained.

Lack of adjustment of the education sector within the overall social and economic framework will finally tend to produce major disruptions with in educational systems themselves. As educational systems in Asian countries are forced into the role of a buffer between pressing demands of rapidly growing numbers of young people and the limited absorptive capacity of society, the quality and internal efficiency with which they perform their functions is likely to suffer.

II. Quality and internal efficiency

Educational planners, assessing the progress made during the past decade, increasingly realise that the rapid expansion of education forced upon them by growing public demand in conjunction with incessant population pressure, could take place only at the expense of stagnating or deteriorating quality standards and widespread educational wastage in the form of excessive repetition and dropout.

Although the causal links between qualitative aspects of education and population dynamics do not lend themselves easily to direct verification, they necessarily form an important part of the picture.

Trends of total educational expenditure per pupil may be useful as a first and global measure of quality improvement in education. At face value, the amounts spent per pupil have risen in all countries of the region, though with marked variations between countries. However, because such trends are not adjusted for price increases that occurred during the same period, they would hardly reflect real improvements in the provision of educational goods and services per pupil. Comparisons with the parallel increase of consumer price indices indicate that in the majority of Asian countries, with the exception of Korea, Laos, Singapore and Thailand, the bulk of additional expenditures per pupil during the period 1960-1969 may have been due mainly to price increases, leaving little room for tangible quality improvements.

The trends of pupil/teacher ratios at the first and second levels of education in Asian countries, as presented in Table 3, seem to underscore this suggestion. For primary education, Table 3 reveals improving pupil/teacher ratios for a number of countries, but high or deteriorating ratios for many of the countries. Negative trends of pupil/teacher ratios are the dominant feature in secondary general education. The majority of Asian countries have apparently been unable to supply new secondary school teachers at a pace equal to the rapid growth in student numbers.

Although less than the required number of teachers tend to be employed, teachers' salaries typically absorb the bulk of current educational budgets in Asian countries. Resources are seriously deficient for such essential items of recurring educational expenditure as administration and supervision, school transport, maintenance of school buildings, textbooks, instructional materials. It seems that at present most countries devote not more than 15 to 25 per cent of current educational budgets to such items. The dilemma in which they find themselves is obvious, considering the need to keep teachers' salaries at competitive levels and to replace low-paid, unqualified teachers by qualified teaching staff claiming higher remuneration.

As a consequence and corollary of the quality gap in education, excessive school dropout and repetition have developed into one of the major problems facing educational planners in the Asian region. Underachievement and absenteeism lead to frequent repetition of grades and eventual dropout of many pupils, thus endangering the internal efficiency of the schooling process which, after all, constitutes the largest and most expensive public enterprise in many developing countries.

One way of indicating the magnitude of the problems involved is by looking at the retention capacity or holding power of the school systems. This is what Table 4 attempts to do for first level education in Asian countries.

Although the data given do not account for the incidence of grade repetition, a fairly clear-cut picture emerges: there appear to be very

Table 3. Trends in the number of pupils per teacher in primary and secondary general education: Asian countries.

Country	Years	Primary Education	Secondary General Education	Country	Years	Primary Education	Secondary General Education
Afghanistan	1962	56	14	Malaysia (West)	1960	29	28
	1965	54	25		1965	28	26
	1969	43	25		1970	32	26
Bangladesh	1960	41	22	Mongolia	1961	32	21
	1965	44	26		1965	32	21
	1969	53	26		1969	32	21
Burma	1960	42	29	Nepal	1960	40	13
	1965	53	40		1965	29	18
	1969	51	32		1969	25	18
India	1955	33	25	Pakistan 1)	1960	34	28
	1960	36	28		1965	35	28
	1964	39	29		1967	37	28
Indonesia	1960	39	16	Philippines	1960	36	29
	1965	42	17		1965	31	45
	1969	40	17		1967	30	37
Iran	1960	34	24	Singapore	1960	32	29
	1965	30	29		1965	29	25
	1969	33	35		1970	29	22
Japan	1960	35	25	Sri Lanka	1960	—— 31 ——	
	1965	28	33		1965	—— 28 ——	
	1970	26	19		1967	—— 26 ——	
Khmer Republic	1960	37	29	Thailand	1960	36	[illegible]8
	1965	48	25		1965	34	17
	1968	48	32		1968	33	20
Korea, Republic of	1960	58	41	Viet-Nam, Republic of	1960	53	29
	1965	62	37		1965	56	37
	1970	57	40		1968	58	39
Laos	1960	32	19				
	1965	32	22				
	1969	33	18				

Source: *Progress of Education in the Asian Region, Statistical Supplement*, Unesco Regional Office for Education in Asia, Bangkok 1972.

Note: 1) Primary classes attached to secondary schools are included under "secondary general education."

Table 4. Retention capacity of first level education in Asian countries: Grade enrolments as percentages of initial enrolment in Grade I

	Cohort Starting in ...	Grade I	Grade II	Grade III	Grade IV	Grade V	Grade VI	Grade VII
Afghanistan	1964	100	92	88	74	62	52	—
Bangladesh	1965	100	60	52	44	37	—	—
Burma	1960	100	29	22	18	—	—	—
India	1961	100	58	48	41	34	—	—
Iran	1964	100	88	82	78	74	73	—
Japan	1964	100	100	100	100	100	99	—
Khmer Republic	1963	100	67	59	46	35	31	—
Korea, Republic of	1965	100	95	93	92	90	89	—
Laos	1964	100	46	37	26	20	20	—
Malaysia (West)	1965	100	100	98	95	91	85	—
Mongolia	1967	100	99	97	93	—	—	—
Nepal	1965	100	41	37	31	...	—	—
Pakistan	1964	100	70	62	59	50	—	—
Philippines	1962	100	84	79	71	62	56	—
Sri Lanka	1961	100	75	71	61	53	45	41
Thailand	1962	100	74	70	61	16	15	13
Viet-Nam, Republic of	1964	100	77	67	56	49	—	—

Source: Progress of Education in the Asian Region, Statistical Supplement. Unesco Regional Office for Education in Asia, Bangkok 1972.

few countries in Asia that succeed in channelling a majority of their first-graders through the primary cycle within the prescribed time span. In the majority of countries more than half of all pupils in grade 1 tend to drop out before completing the cycle, or are retarded by one or more years due to repeated grade repetition. It almost seems as though the practice of universal school admission were being offset by subsequent heavy selection which adjusts student numbers to the limited schooling facilities available.

While dropout and repetition inflate public education expenditure per graduate, keeping children in school over the full cycle would on the other hand considerably increase the financial burden to be borne by parents. It is at this point that the relevance of demographic factors becomes evident: as the demographic dependency ratio increases with rapid population growth, the task of giving a full education to an ever increasing number of dependents puts a severe strain on the limited economic means of adults whose share in the population is decreasing anyway (hence child labour is used and this constitutes one of the causes for school dropout).

III. Problems of educational equality

The process of population dynamics seems to have an indirect but strong bearing on problems of equality of educational opportunity. As the quantitative expansion of education continues, pushed forward by rapid population growth, educational planners are tempted to save funds by curtailing or postponing programmes to alleviate persisting inequalities of educational provision.

Education of girls

Existing inequalities assume particular significance, when the educational status of girls and women comes to be considered. Intensifying and extending education for girls undoubtedly forms an essential contribution to the task of mastering the problems of rapid population growth in Asian countries. Marriage tends to be postponed as girls are enabled to continue their education, and educational attainment is known to be a major factor shaping attitudes towards and practice of family planning. Table 5 throws some light on the educational advancement of girls in Asian countries during recent years. Female enrolment as a fraction of total enrolment has increased slowly at the first and second level of education. In higher education, the pace of advancement has been somewhat more marked.

Table 5. Female enrolment as percentage of total, by level of education, Asian countries, 1960, 1965 and 1969

		1960	1965	1969			1960	1965	1969
Afghanistan	Primary	11	15	13	Laos	Primary	32	36	37
	Secondary General	21	19	15		Secondary General	29	...	26
	Higher	12	20	15		Higher	12	17	15
Bangladesh	Primary	28	31	32	Malaysia	Primary	43	47	48
	Secondary General	8	13	16	(West)	Secondary General	33	38	4[illegible]
	Higher	6	7	8		Higher	37	33	30
Burma	Primary	44	46 1)	47 (66)	Nepal	Primary	...	14	15
	Secondary General	33	39	...		Secondary General	...	15	17 (68)
	Higher	...	35	37		Higher	...	18	19 (68)
India	Primary	33	36	37 (68)	Pakistan	Primary	21	24	25
	Secondary General	24	25	27 (68)		Secondary General	15	21	25
	Higher	17	19 1)	...		Higher	17	20	22
Indonesia	Primary	43	46	45	Philippines	Primary	48	48	48 (67)
	Secondary General	33	...	...		Secondary General	45	49	50 (67)
	Higher	21	...	28 (68)		Higher	...	52	54 (66)
Iran	Primary	33	34	37	Singapore	Primary	44	46	47
	Secondary General	29	32	33		Secondary General	39	45	47
	Higher	11	24	25		Higher	31	20	35
Japan	Primary	49	49	49	Sri Lanka	Primary			
	Secondary General	48	48	49		Secondary General	46	47	47 (67)
	Higher	20	24	28		Higher	19	32	43 (68)
Khmer	Primary	30	39	41 (68)	Thailand	Primary	47	47	47 (68)
Republic	Secondary General	15	20	24 (68)		Secondary General	38	41	41 (68)
	Higher	29	12	15 (68)		Higher	29	30	42 (68)
Korea	Primary	45	48	48	Viet-Nam	Primary	40	43	45 (68)
Republic of	Secondary General	28	37	39	Republic of	Secondary General	32	37	39 (68)
	Higher	17	25	24		Higher	18	23	32

Source: *Progress of Education in the Asian Region. Statistical Supplement,* Unesco Regional Office for Education in Asia, Bangkok 1972.

1) 1963

Table 6. Enrolment ratios at specified age groups by sex, and by urban and rural areas, selected countries (percentages)

Country and Census Year	Sex	Age Group 5-9		10-14		15-19	
		Urban	Rural	Urban	Rural	Urban	Rural
India[1] (1965/66)	MF	75.3	62.8	39.9	14.4	39.8	8.6
Indonesia (1961)	MF	49.0	30.9	79.8	55.8	39.3	12.3
	M	49.4	31.8	84.1	60.9	48.2	18.2
	F	48.5	30.2	75.4	49.9	30.1	7.4
Iran[2] (1966)	MF	76.0	31.6	75.8	29.2	41.9	6.9
	M	83.0	47.8	84.3	46.4	53.5	12.5
	F	69.0	13.9	66.5	9.9	29.1	1.6
Pakistan[3] (1961)	MF	26.4	13.3	41.2	19.6	20.0	6.9
	M	30.7	17.3	48.9	27.8	26.0	12.7
	F	21.5	8.9	32.2	9.2	12.0	0.9
Sri Lanka (1963)	MF	79.8	72.4	81.4	73.9	49.8	37.5
	M	80.4	73.9	83.2	77.7	51.2	41.1
	F	79.2	71.0	80.0	69.9	48.1	33.8

Source of basic data: *Statistics of Children and Youth.* Supplement to the Statistical Yearbook for Asia and the Far East, 1968, (ECAFE), 1969.

1) Enrolment data from *Second All-India Educational Survey*. Population data were estimated on the basis of the 1961 age-distribution.

2) Figures in column "Age group 5-9" refer to age group 7-9.

3) Including data for Bangladesh.

Rural-urban disparities

Educational inequalities in Asian countries are equally apparent in the rural-urban dimension. Despite the fact that the vast majority of Asians live in rural areas, that the economies of Asian countries will continue to be mainly agriculture based, and that development efforts must give priority to improving rural living conditions,educational systems still seem to cater mainly for urban minorities. Table 6 describes rural-urban disparities of educational provision for a few Asian countries, selected on the basis of data availability. It can be seen that while the rural-urban gap already opens at the primary level, it widens markedly as children climb up the educational ladder. For the age-group 15-19, enrolment ratios for urban youth tend to be substantially higher than in rural areas. In addition, rural-urban disparities are apparently stronger for girls than for boys. This quantitative picture is corroborated by what little statistical information there is about the different quality of rural vs. urban education. In general, rural schools have higher pupil/teacher ratios, less qualified teachers, and a higher incidence of educational wastage than their urban counterparts. Many rural schools provide less than the required number of grades. Outlays per pupil place tend to be just a fraction of what is spent on urban schools.

In the light of these disparities, educational reformers often pin their hopes on increasing the opportunities for non-formal education in rural areas. However, as stressed in the final report of the Singapore Conference of Education Ministers, the patterns of out-of-school activities in Asian countries are at present very scattered and usually still in an experimental stage. The uncontrolled expansion of formal school systems may not only have absorbed available resources, but also part of the innovative energies of educational planners. Until more emphasis is placed on non-formal educational facilities, especially in rural areas, being out-of-school will remain tantamount to being without real educational opportunity.

IV. Conclusion

To a large extent, educational trends in Asia during recent years can be related to the underlying process of population dynamics. However, to argue that rapid population growth is to be held responsible for whatever problems have emerged in the educational realm, would be an unwarrantably wide generalization. For instance, the figures presented suggest that much of the recent expansion, notably at higher levels of education, is due to the steep rise in public demand for education no less than to demographic growth factors as such. Similarly, educational wastage in Asian countries is related to a whole group of factors in and outside the school system; excessive inflow of new pupils and a growing demographic dependency burden form part of this syndrome, but are not solely responsible.

What needs to be emphasized, then, is that none of the educational problems outlined can be properly understood and cured if viewed in isolation from the process of population dynamics. Analysis and practical action on the part of educational planners must give more explicit attention to the role of the population variable in educational development.

PART TWO

THE DEMOGRAPHIC OBSTACLE TO EDUCATIONAL PROGRESS

1. THE PROBLEM

The Population Variable in Socio-Economic and Educational Development

I. Population dynamics and socio-economic development

The adverse effects of rapid population growth on social and economic development are increasingly engaging the attention of political leaders all around the world. In the majority of Asian countries, national development plans consider population policies as a necessary corollary of economic and social planning. This is beginning to be reflected in the creation of new interdepartmental bodies which integrate population analysis and planning with the other dimensions of social and economic development.

What remains of earlier controversies about the population issue would seem, to a large extent, ideological or based on misunderstandings. First of all, the concrete and short-run aim of developing countries to adjust fertility levels to the precedent fall in mortality is one thing, while the long-run global need to control population growth on the planet earth is quite another. Furthermore, emphasis on the population issue is not to displace but to support efforts for socio-economic development. And, thirdly, current population policies in developing countries do not try to impose upper limits on population numbers; in fact, they are not at all concerned with optimum population size, but with the timing of the process of population dynamics, the pace at which, say, a doubling of the population is likely or desirable to occur.

In addition to such possible misunderstandings, the population issue also carries deeply rooted cultural, religious and political connotations. This is why the development planner may find it difficult to look at the socio-economic effects of population dynamics in isolation. However, what is needed in development planning is to identify and bring about that particular rate of population growth which will be in line with the rates at which other basic factors of production can be expanded according to available levels of technology, and which will leave governments with sufficient funds to perform the essential social and infrastructural services needed. It is only when this essential balance in the growth of different factors of socio-economic development is achieved, that overall development can assume an optimum pace.

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by the Unesco Secretariat

The question, then, is whether present population growth rates of 2 to 3 per cent in Asian countries are above, equal to, or perhaps lower than the economically and socially desirable "equilibrium" growth rate. We restrict our comments to four points:

Shortage of capital

Can the stock of physical capital in Asian countries be increased with sufficient speed and continuity to match current rates of population growth?

As the formation of capital depends on the aggregate rate of investment, the capacity of a country to save and invest part of its income turns out as the decisive variable. However, in developing countries where the modest total income is spent on feeding a large, economically dependent, and rapidly growing population, practically all income goes into consumption and the savings rate remains at a minimum point. Compared with the population growth rate, the rate of indigenous capital formation is, therefore, desperately low. As the pace at which utilization of natural resources can be expanded is, in turn, a function of the availability of capital investment, development tends to be doubly slowed down.

Historically, heavy income inequalities producing affluent minorities amidst general poverty used to yield at least some investment, however socially wasteful. These conditions are clearly no longer acceptable to either industrialised or developing countries. Hence, if fertility fails to decline, massive inflow of foreign capital in the form of aid or private investment - with all its inherent problems - may be the only feasible way to expand capital stocks in Asian countries at a pace equal to that of current population growth rates.

The employment dilemma

As capital stocks cannot be expanded easily, development planners are left with the alternative of improving prevailing levels of technology so as to yield more income and production with limited capital stocks.

However, more productive technologies require transition from labour-intensive to capital-intensive, i.e. labour-saving modes of production. The apparent dilemma, then, is that the objective of raising productivity collides with the powerful imperative to provide employment to the masses. To curb unemployment, jobs have to be created with minimum delay and on a massive scale, regardless of whether there is sufficient capital endowment to maintain satisfactory standards of productivity. Thus, the necessity to generate employment on an ad hoc basis contributes to slowing down the required structural transformation of the economy of developing countries. Low-productivity agriculture still provides the basis of economic life, and rapid rural population growth often leads to half-disguised unemployment in agriculture or, despite the successes of the Green Revolution, to an over-elaboration of labour-intensive farming methods ("agricultural involution"). The emergence of small-scale industries in and around the cities often amounts to little more than shifting human resources to yet another sector of low-productivity work. Therefore, the introduction of labour-intensive indigenous technologies which absorb unemployment and are, at the same time, sufficiently viable in terms of productivity, is assuming utmost importance.

Without the pressure of rapidly growing numbers, the problem of generating employment would lose much of its urgency, so that the countries of Asia could embark on a concentrated effort to introduce and spread modern technologies which would raise productivity on a large scale.

Rising costs of social and infra-structural services

For a dual reason, rapid population growth necessitates heavy increases in expenditure in the fields of social and infra-structural development. Firstly, the actual and desirable quality of public services in the fields of health, nutrition, education, or housing is usually determined on the basis of certain per capita figures, such as hospital beds, doctors, or paramedical personnel per 10,000 inhabitants, protein consumption per head, literacy rates, or living space per family. This makes public outlay in those essential sectors of social development directly dependent on the rate of population growth. As a consequence, national development plans in Asian countries have to cope with a quasi-automatic, built-in tendency of social and infrastructural expenditures to rise in keeping with the growth of the population.

The second significant aspect is that the costliest and most important social services are particularly sensitive to an increase of the younger part of the population. This is obvious in the case of education, but the main thrust of health and nutritional programmes is equally on the young. Now, it is a well-known consequence of rapid population growth that the proportion of younger age brackets within the total population tends to rise considerably. In fact, an average of 40 to 50 per cent of Asia's population is today younger than 15 years, as against an average of 20 to 30 per cent in Europe and North America. The consequences for the costs of social services of such differences in age composition are no doubt a matter of great concern.

Social and infra-structural expenditures are indispensible in the long-run and, moreover, justified on grounds other than economic. However, their immediate effect is clearly to divert the scarce resources of developing countries from directly productive use. This is perhaps particularly felt in the cities, where the massive inflow of young rural migrants forces municipal authorities to spend the bulk of their limited budgets on preventing a breakdown of local transport, trying to provide adequate housing, water supply, proper sewerage facilities, and so on for destitute newcomers. Demands for social and infrastructural services are certainly no less pressing at the national level nor, for that matter, in rural areas. Inevitably, these inflated costs are met at the expense of production and investment in capital, thereby slowing down overall development.

Direct and 'spillover' effects of population dynamics

Finally, development planners looking at the impact of population dynamics on socio-economic development have to consider the fact that the various social and economic sectors are strongly inter-dependent.

For example, failures or neglects of health policies are very likely to lead to serious consequences in the fields of education or child nutrition, and vice versa; failure to cope with environmental degradation - which may be caused by, say, excessive immigration and squatter settlements in urban areas - will inevitably have adverse effects on public health; programmes in the fields of housing and public transport depend heavily on each other; if communication and information networks remain underdeveloped, rural health and family planning programmes can make little headway, and so on.

Other examples could easily be added. What they make abundantly clear is that development planners cannot afford even a temporary emphasis on one particular social sector to the exclusion of others - however tempting it might be to concentrate efforts and budgetary means on one specific field for a limited period. Although overall progress may be slow and costs heavy, it is imperative that social and economic development proceeds in an integrated manner, developing education, employment, health, nutritional, environmental, and other programmes at a synchronized and balanced pace.

It is precisely this inter-dependency that has to be taken into account as we look at the impact of population dynamics on social and economic development. Not only is each single sector of development directly affected by the process of population growth and change; but indirect repercussions which result from the influence of demographic factors on other, closely related sectors of development may turn out to be equally important.

Therefore, for any given sector, direct and "spillover" effects of population dynamics have to be assessed separately. For instance, development planners in country X may have calculated that lowering the crude birth rate from 30 to 20 per thousand would benefit the educational system only insignificantly and only in a few years hence by, say, reducing new admission to primary education by 5 per cent and, eventually, saving some 2.5 per cent of the education budget. They may, therefore, conclude that further investments in family planning would yield insufficient returns. However, these direct effects do not give the full picture. Reducing the birth rate would, at the same time, considerably influence maternal and child health as well as nutritional standards among children. These improvements, in turn, would have strong, positive "spillover" effects on education. Children would tend to show better physical and intellectual development and pupils' achievement would measurably improve, thus remedying one of the major causes of school retardation and dropout. It is only when these and many other "spillover" effects from other sectors of social development have been cross-analysed and weighed that the total effects of population dynamics on health, education, or any other particular field can be fully assessed.

II. Population dynamics and educational development

When examining the impact of population dynamics on educational development in particular, it is helpful to distinguish between the quantitative, qualitative and equality dimensions of the problem.

The quantitative dimension

The quantitative consequences of rapid population growth are probably the most obvious ones. The economic burden which societies bear by maintaining and expanding their educational systems becomes heavier as rapid population growth increases the number of young and economically inactive dependants relative to those who are economically active.

More directly, however, rapid population growth forms a paramount obstacle to attaining essential educational targets in the quantitative realm. Educational planners of the early sixties who set desirable target figures for enrolment ratios, teacher-student ratios, and general literacy levels were not sufficiently aware that they were aiming at a moving target. Valuable case studies done under the auspices of I.I.E.P. and the Population council, from which some results are presented in this volume, have given proof that rapid population growth in Asian countries has in many cases outpaced the progress made in terms of absolute student numbers.

For instance, the Conference of Asian Ministers of Education at Singapore in 1971 noted that absolute enrolment numbers in the age group 5-24 had shot up by 61 per cent between 1960 and 1968, whereas enrolment ratios for this age group - and this is the more important figure - rose by only 29 per cent. The total number of teachers in the region rose from 2.7 million in 1960 to 4.3 million in 1968, but ".....in spite of an increase of this magnitude, the supply of teachers in most countries has not kept pace with the rate of enrolment expansion. This disparity between the supply and demand was reflected in the pupil-teacher ratios which have tended to rise at all levels." [1] Similarly, the adult illiteracy rate went down from 66 per cent around 1960 to an estimated 58 per cent for the region in 1970, but owing to excessive population increase the absolute number of illiterate adults in Asia continued to increase.

Thus, the quantitative repercussions of population pressure on education during the recent past are obvious; in the future, the capacity of Asian countries to finance the planned expansion of their educational systems will largely depend on their ability to curb rapid population growth.

The qualitative dimension

In the qualitative dimension, the inflation of student numbers through fast growing, increasingly younger populations has often left little room for necessary improvements in quality such as upgrading of teachers, providing more and better school buildings and introducing modern educational technologies. Also, very little funds remained available for experimental programmes and/or pilot projects designed to test innovative educational strategies. Annual additions to education budgets went largely into the recruitment of new teachers simply to prevent a deterioration of prevailing student-teacher ratios.

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[1] Final Report, Third Regional Conference of Ministers of Education and Those Responsible for Economic Planning in Asia, Singapore, 1971, p. 15

The problem of school dropout and retardation would also appear to be related to population pressure and the resulting quality crisis in education. It is hard to imagine the enormous additional numbers in school and university if there were no dropouts. In a sense, the dropout phenomenon can be looked at as an understandable, albeit undesirable, reaction of school systems to rid themselves of part of the excessive inflow of students. School dropouts are thus often casualties of uncontrolled educational expansion pushed forward by rapid population growth.

The equality dimension

Pressure of population, apart from its effects on quantitative and qualitative educational development, tends to curtail the contribution of education towards more social equality. Experience suggests that programmes to alleviate educational inequalities between boys and girls, between urban and rural areas, and between upper class and poorer sections of society tend to be sacrificed first, as scarce resources available for these programmes are devoured in providing for basic minimum needs of rapidly growing numbers of students.

Lack of equal educational opportunity is, of course, a vital problem in its own right. However, it assumes additional relevance if it is realised that those who tend to be neglected by the school system are the very ones who are least responsive to attempts at reducing traditionally high fertility patterns. It is not in the first instance overall lack of educational provision as such, but lack of equality in education which contributes to continued high fertility amongst specific sections of society.

There is little hope that population pressure on education will ease in the near future, as even the most successful population policy involves large time-lags. On the contrary, available demographic as well as educational projections seem to suggest that present conditions may become even more acute in the future. However, while population pressure acts as a major obstacle to the achievement of quantitative expansion, qualitative improvement and equality of opportunity in education, it may also work as a positive stimulus towards educational reforms which might have remained unattended if educational systems were under less pressure. It is thus the very dialectics of development that may open up room for innovative action, using population dynamics as the prime mover.

Impact of Population Dynamics on Educational Development in Asia and on the Definition and Attainment of Educational Objectives

I. Population dynamics and socio-economic development

Socio-economic development covers a variety of areas. Usually it relates to changes in the conjugal status, households, housing development, food supply and nutrition, education, health, social security and welfare, social mobility, manpower, labour force, employment and income, social dependency and transport and communication development, including interpersonal communication. These are usually regarded as the areas of social or socio-economic engineering, amenable to planned manipulation, not only for guiding the direction but also for regulating the pace of change.

In any country population has its own dynamics, the three important factors in the dynamics being the birth rate, morbidity and mortality rates and the migration rate. Changes in these rates bring about changes in the characteristics and structure of the population and these dynamic changes in the population have their effect on the programmes of social change. In their turn, the processes of social change have their impact on the factors of population change-in short, on population dynamics.

A population with stable birth and death rates and very little migration maintains a regular, evenly tapering age pyramid against which all demands for investment and consumption can be easily projected. In populations where the birth rate or alternatively the death rate fluctuates widely (on account of famines and wars, as in the case of the USSR between 1920 and 1947) the successive age pyramids built for the past and projected into the future would tend to give the impression of a bolus passing through the intestines, leaving the bulges and pinches of peristalsis on the shape of the pyramid over time. This paper is mainly concerned with the bulges and pinches of the peristalsis of population dynamics, primarily in relation to educational development and attainment of educational objectives in this part of the world. It will not concern itself with other aspects of social development like housing, food supply, nutrition and health, manpower, labour force, employment and income, transport and communication.

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II. The effects of population change

One may as well begin with the obvious consequences of population dynamics as it is commonly referred to. A higher birth rate for five years from now will mean a larger young population demanding (1) primary education from five to nine years from now; (2) secondary education from 10 to 14 years from now; (3) higher education from 15 to 19 years from now, or even up to 24 years from now; (4) accelerating demands on all the three counts from 20 years, again from now (on account of the fact that 20 years from now many persons born today will have married and have started producing children who will make fresh demands). A higher birth rate will increase the demand on the resources of (1) obstetrical, gynaecological and hospital facilities, public health, maternity and child care, immunisation, nutrition and pediatric services immediately, (2) pediatric services, immunisation, nutrition and school feeding programmes 5-14 years from now, (3) more dispensaries, public health, immunisation, obgyn, general and special hospital facilities, family planning services 15-44 years from now, and (4) annually increasing demands for facilities listed in (1), (2) and (3) twenty years or so onwards from now. A higher birth rate would also lead to (1) larger pressure for employment and creation of jobs 15-29 years or even later up to, say, 54 years from now; (2) a larger population ripe for marriage and production 20 years from now if not sooner; (3) a larger pressure for migration from 15 to 49 years from now (rural to rural, rural to urban, urban to urban, urban to rural); and (4) a more stubborn problem of adjustment of population in all areas right from now.

An immediate drop in the birth rate will have the effect of decreasing the demands listed above only after the lapse of the years specified against each item above. Similarly, accelerated declines in demands, on account of steady declines in the birth rate, can start only after the lapse of the periods mentioned above.

Sudden and temporary marked falls in birth rates or increases in death rates of short durations only will result in marked peristaltic pinches and bulges throughout the age pyramid for the cohorts born in these specific periods. But, since these are sudden and temporary, and not long-term or permanent trends they cannot substantially influence the committed trends in planning on education and welfare, even as facilities have to be sustained and cannot be partially dismantled during the vacations of an academic year. But if a sustained decline in birth rate starts right from now, this decline will bring substantial relief to expenditure on education, beginning 6 years from now in primary education, 15 years from now in secondary and higher education, on the rate of reproduction beginning 20 years from now, and on employment and income programmes 15 years from now.

III. Impact of population dynamics on education

The impact of population dynamics on educational systems will be a steady increase in enrolments which will reach their maximum as first level schooling is enforced. To prevent the national waste of dropouts and repetition, the educational system will need to be qualitatively improved all round which alone will guarantee an improvement in the retention and dropout rates. This will automatically imply continuing improvements in teacher qualifications. This, in turn, will mean an increase in the long term trends of the unit costs of educational systems. Apart from capital costs and costs of replacements, the most palpable burden on the public exchequer will be the salary costs of teachers.

A simplified formula represents educational expenditure as:

$$\begin{aligned} E &= E\,cap + E\,cur \\ &= E\,cap + \left(P \times \frac{T}{P} \times \frac{S}{T} \times \frac{E\,cur}{S}\right) \end{aligned}$$

where E = total educational expenditure, E *cap* = capital educational expenditure, E *cur* = current educational expenditure, P = number of pupils, T/P = teacher-pupil ratio, S/T = average salary per teacher, and E *cur*/S = the ratio of current expenditure to salaries.

P may be defined as the size of the relevant age group multiplied by the enrolment ratio, or, alternatively as the size of admission age population multiplied by the intake rate x average length of schooling. But these are for any country as a whole. Within a country, planners will have to take various norms for E *cap* .R, E *cap* .U, E *cap* .BA, etc. for rural, urban and backward areas.

Similarly, E *cur* will be the sum of a number of components like E *cur* .R, E *cur* .U, E *cur* .BA and so on. Then again, T/P will have to be broken up into several components depending on rural, urban and backward areas, industrial areas, agricultural areas, and high inmigration or outmigration areas.

Similarly also, S/T will have to be broken up into several components defined according to specific zones of the country. P again will have to be modified by assumptions of dropouts, repeaters, and overage and under-age admissions.

While the overall national assumptions are easy to make, the differential rates of population growth in States in a federal structure and the facilities for obtaining teachers, teaching aids and school buildings which vary from one State to another render the standardization of norms very difficult. Moreover, cultural factors,particularly those relating to girls, reflect on admission and leaving ages. The difficulties of sending teachers to rural and inaccessible areas add dimensions to various types of capital and current expenditure, like capital expenditure on the housing of teachers, current expenditure on replacements, etc. In the end, current educational expenditure is far from being merely a simple linear function of population growth along with such parameters as intake rate, length of schooling, teacher-pupil ratio, teachers' salaries and the allocation of current expenditure that is spent on non-salaried items. In a federal structure with central planning machinery, the temptation to work on simplified educational cost formulae comes into conflict with the specific demands of constituent States, and a central linear calculation does not always contribute to sharpening awareness among political leaders and planners of the need for education and its specific requirements for their own States. But even on the basis of regarding growth in educational expenditure mainly as a simple linear function of population growth, studies undertaken at the International Institute for Educational Planning have come to the conclusion that on the assumption of a medium rate of population growth between 1971 and 1989, recurring costs of primary education will be multiplied in Sri Lanka (which already has almost universal schooling and literacy) 3.4 times; in Tunisia 4.2 times; in Colombia 4.8 times; and in Tanzania (where the fertility is high and literacy is still the lowest of all the four countries) 8 times.[1] The differences are mainly due to differences in the rate of fertility in these countries assumed up to 1989. As the study points out, they will also depend on the differences in the trend between the base year and the horizon year of variables like intake rate, retention rate, percentage of qualified teachers, and average level of salaries. A factor which has not been taken into account in the IIEP Study but which has become real in several developing countries, reflected through the ratio of teachers' salaries to the GDP per person of working age, is the effect of inflation on the average level of teachers' salaries. This brings about constraints which, though artificial, yet become very real in actual practice.

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[1] Ta Ngoc Châu *Population Growth and Costs of Education In Developing Countries.* Unesco, International Institute for Educational Planning, Paris, 1972.

Recapitulating, therefore, the broad areas of impact of population dynamics on educational development, the growth of total admissions to the educational system will depend on the growth of first level enrolments, new entries, intake rates, and, in a smaller measure, late entries. These will determine largely the projection of total and specific teacher needs, the breakdown of teacher needs by level of qualification, and the supply of teachers by length of service. A separate exercise will have to be undertaken of projecting teacher training costs on the basis of progressive teacher training enrolments and costs of teacher training. Although the ratio of the population in school to total working age population will depend on government policy, population growth itself will have the effect of raising the proportion of the GDP devoted to first level education on account of the high ratios of children under 14 to population of working age in developing countries.

IV. Educational planning, demographic change, and economic development.

At this point one feels the need to bring in the wider issues of the impact of population dynamics on educational development, and more particularly on the definition and attainment of educational objectives in the wider frame of developmental planning as a whole.

Educational planning is intimately concerned with development planning and will depend upon the general view of the policy makers on what shape the country will take in terms of the development of the main sectors of the economy, namely, agriculture, primary industries, secondary industries, transport and communication, trade and commerce, and tertiary services. Viewed in this light, educational planning in the context of population dynamics boils down to manpower planning, with particular reference to issues of rural-urban migration, furnishing backward regions with qualified manpower and peopling sparse regions with population adequate for energising the region.

For this purpose, particularly in the context of planning educational facilities to answer local and regional needs, population projections by relevant age and sex groups are very important for rural-urban breakdowns, agriculture, mining and other industries, services, trade and commerce, and transport and communication. A certain view will have to be taken of how much population is intended to be transferred from agriculture to industry or from industry to agriculture in particular regions, of the volume of physical migration to be encouraged between rural and urban areas and between one region and another, particularly with an eye on the development of backward areas.

The running thread of all these projections will be as close an assumption as possible for persons in various age-sex groups put in gainful employment. In short, the impact of population dynamics on the definition and attainment of educational objectives will be most evident and fruitful if a population balance-sheet is attempted on the above lines and the provision of educational facilities are tailored to each sector as it emerges. Instead, most countries are carried away by the inertia of investments already made, the pattern and content of education already inherited, and the allocations of populations by age-sex groups already sanctified by tradition. In consequence, most educational planning which presumes to take into account the impact of population dynamics is reduced to mechanical exercises of financial costs of housing, teaching aids and teacher requirements, and little more.

V. Setting priorities in educational development

On a rough calculation, about 60 per cent of the population in the foreseeable future in many countries of Asia will continue with the existing technology of production, mainly in agriculture and household industries. What the new technology of the Green Revolution demands is in reality a reinforcement of the existing technology with an ability to read and write the instructions on how to apply the inputs and to use the new agricultural implements. The household industries and the servicing sector will also need more than 4-5 years of formal education at the primary level. Another 35 per cent of the population will still be employed in areas of intermediate technology, including the urban services and offices, while the level of education needed will be more than that available between classes IX to XI followed by technical education in polytechnics. Training in the paramedical services should be available in polytechnics and vocational institutions in States rather than in colleges. At the outside not more than 2-5 per cent of the population of any country, whatever the base of the population, are really needed in higher technology, in the fundamental sciences and the humanities, or for high policy and administrative purposes. Education in higher technology is a highly subsidised area. An engineering graduate in India costs the public exchequer about Rs 90,000 of which the student gives back not more than Rs 10,000 by way of fees and other charges. This means that for every engineering graduate, the State spends about Rs 80,000 from the taxpayer's money, for which it does not always get back adequate returns, for often the engineering graduate is one too many and laid up for long periods in unemployment.

If the working age bracket is reckoned normally at 15-59, and if the age group which should be compulsorily at school up to class VIII is reckoned at 14, up to class XI at 16, at college between 17 and 21, and then on in higher education up to the age of 23 or 24, then a further full ten years are taken off from the working life span of an average citizen. By taking away these full ten years from the working life span, the Gross Domestic Product per capita is reduced while consumption by way of maintaining the young person is increased and becomes a burden on the public exchequer.

VI. Education up to age 14

In underdeveloped countries, whatever the assumption on the rate of growth of population, the economic reality is very evident in that (a) education expenditure will cause greater dependency and (b) it is most important to reduce the ratio of population in dependent age groups to the population in working ages. All education beyond age 14 in the developing countries therefore has a depressing effect on the Gross Domestic Product and an inflationary effect on consumption. Any years devoted to higher education beyond the age of 14 will have to be compensated for by a corresponding rise in productivity. That means to say, education for persons beyond 14 must be highly selective, depend rigorously on merit and potential and must be tailored to the emerging technological needs of the country as a whole. Otherwise, there is a danger of a large population in the age bracket 15-24, the most productive among young and shortlived populations, being supported at the cost of the working population whose proportion and output will tend to diminish. The IIEP calculated[1] that in Tunisia, Colombia and Tanzania, the population of age group 5-14 is as much as 52.2 to 58 per cent of the population in age group 15-59. In Sri Lanka this ratio is around 48, but in France it is as low as 29. In countries of the Indian sub-continent it will be around 55. Although our expectancy of life at birth is more than 52 today, neither our life conditions nor our employment situation will permit the official age of retirement to go beyond 58 to 63 for some time. On the other hand, there is pressure following the trend in developed countries to raise the lower limit of entry into the labour force from 15 to 17 by adding three more years of compulsory schooling, which may not be necessary under our conditions of teachnological progress.

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[1] see Ta Ngoc Châu, op.cit.

One might argue, following this trend of thought, that it would not be necessary even to impart primary education which would keep children up to 11 or 14 away from employment. But the case for primary education has been proved beyond doubt all over the world. At the beginning of the Meiji era, the Emperor of Japan took no responsibility for any other measure of social welfare except compulsory primary education. By the turn of the nineteenth century, Japan was well on the road to universal literacy. In the early 1920's when the Soviet Government wanted to put most of its resources on industrialisation and electrification (Goelro Plan), Strumilin succeeded in persuading Lenin that four years of compulsory formal education at school, which the Soviet Government could ill afford at that moment, was essential for improving the productivity of the Soviet people and the implementation of industrialisation on which the country was determined. Between 1820 and 1870 the neo-Malthusians in England left no stone unturned to advocate birth control among the poor and working populations in that country, but nothing availed until the Primary Education Act was promulgated in 1870 requiring parents compulsorily to send children up to 10 years of age to school, thus withdrawing them from work at home and also from the labour force. This had the result of reducing the 'value' of the child overnight and increasing its 'cost' simultaneously. As a consequence, even though the technology of birth control was primitive, even those methods of birth control began to show decisive results after 1870. At the same time, the enforcement of compulsory primary education gave England her lead in the second stage of the industrial revolution in Europe which sustained her up to the 1930's.

VII. Education for economic development

The current pattern of educational planning and financing in many countries of Asia has therefore had the effect of keeping more and more people at the most productive stages of their life away from work. At the same time, more and more people have purchased time at the public expense and remained unemployed in the hope of improving their market value, but this process has not compensated for the national loss in work efficiency and productivity. What is more, a small but expanding elite group endowed with higher education in the humanities, sciences and technologies cannot operate as effectively in a general sea of illiteracy as it would in a milieu of literate workers.

For very many purposes, therefore, the definition and attainment of educational objectives in developing countries should concentrate on 5 to 7 years of compulsory formal education in the age group 6-14, followed by effective courses in polytechnics covering a wide range of vocations which will improve the general orientation and reinforce it by health care, nutrition, and population education. The curricula of technical education beyond the age of fourteen should be so designed to turn the population of ages 14-17 as quickly as possible into the stream of the working population. Admission to higher secondary education and still higher education in colleges and universities should be rigorously screened and limited to no more than 2 to 5 per cent of the population admitted at the primary stages, in order that education at the higher stages may be properly serviced, financed and subsidised for the public good. Instead, investment in education is stepped up merely to stave off the spectre of unemployment, but that is hardly the way to break the vicious circle of educated unemployment. In developing countries, especially those suffering from overpopulation, the aim of educational programmes must be to match the productivity of each sector with a perspective for the next ten years or so. In short, the idea must be to train the population more adequately for the local technological and production situation, and not to produce square pegs for round holes.

In countries of the Indian sub-continent, an administrator touring in rural areas in the late 1940's would be overwhelmed with requests for primary schools and drinking water. Primary schools would be the first on the list of demands. If the same administrator were touring in the late 1960's in the rural areas he would have found primary schools rather low on the list of priorities of demands, even in areas not provided with schools. This can only imply that these populations no longer find the school curriculum satisfying their needs. The lesson is that it is high time that the school curricula should be changed and addressed more specifically to the needs of a locality.

These imperatives are more and more forcing themselves upon policy makers and administrators. Nonetheless, even now educational planners are content more with finding out how much money is available and how it can be allocated among the existing channels of education, making allowances for certain rates of population growth, Most educational authorities in the Asian countries end up by supporting precisely those areas which they most actively condemn and almost in the same proportions as they had enjoyed before. The old educational mould in some ways becomes the most stubborn vested interest in a nation's life. Further, in few developing countries have education and health presented much of a challenge to their governments. In most of these countries health and education have been the charge of junior Ministers and junior administrators who have had little more than a peripheral voice in the main decisions of economic and developmental planning.

VIII. Priorities in education: the case of India

An objective lesson may be drawn from the Report of the Steering Group on Education for the Fifth Five Year Plan released by the Planning Commission of India in May 1973. The following Table gives the outlay on education, distributed between various sub-heads:

Table 1. Outlay on education-distribution between various sub-heads

(Rs. in millions)

Sub-Head	First Plan	Second Plan	Third Plan	Inter-regnum (1966-69)	Fourth Plan (1969-74)
(1) Elementary Education	850 (56)	950 (35)	1,780 (30)	653 (20)	2,347.4 (28.5)
(2) Secondary Education	200 (13)	510 (19)	1,030 (18)	526 (17)	1,183.2 (14.4)
(3) University Education	140 (9)	480 (18)	870 (15)	770 (24)	1,855.2 (22.3)
(4) Teacher Education	*	*	250 (4)	94 (3)	211.7 (2.6)
(5) Other Programmes	140 (10)	300 (10)	730 (12)	365 (11)	1,395.4 (17.0)
(6) Technical Education	200 (13)	490 (18)	1,250 (21)	807 (25)	1,213.7 (15.2)
(7) Total Education	1,530 (100)	2,730 (100)	5,910 (100)	3,215 (100)	8,206.6 (100.0)
(8) Total Plan Outlay	19,460	46,800	85,720	66,960	159,020.0
(9) (7) as % of (8)	7.8	5.8	6.2	4.8	5.2

Source: a) *Selected Educational and Related Statistics at a Glance*, New Delhi, Education Division, Planning Commission, June, 1969, p. 99 (mimeographed)

b) *Fourth Five Year Plan*, Planning Commission, New Delhi, 1970, p. 366.

Notes: * Included under elementary/secondary education.
Figures given in parenthesis indicate percentages (rounded) to total.

The following Table relates growth of National Income and expenditure on education between 1950-51 and 1970-71.

Table 2. Growth of national income and expenditure on education : 1950-51 to 1970-71

(millions Rs. at current prices)

Item	1950-51	1955-56	1960-61	1965-66	1970-71
Net National Product at Factor Cost	95,300	99,800	132,940	206,210	315,690
Total Expenditure on Education	11,438	18,966	34,488	62,202	99,697*
Percentage of Expenditure on Education to National Income	1.2	1.9	2.6	3.0	3.1
Expenditure on Education per capita (in Rupees)	3.2	4.8	7.9	12.8	18.2

*Estimated

Source: Figures about Net National Product have been taken from estimates of National Product, 1960-61 to 1969-70, published by the Central Statistical Organisation, 1971, p. 1. Figures for 1970-71 have been taken from the Fourth Plan Mid-Term Appraisal, Vol. I, Planning Commission, 1971, pp. 1-2.

This Table demands a word by way of explanation. Educational expenditure as percentage of the National Income more than doubled during the period 1950-51 to 1970-71, and the per capita expenditure on education increased about six times. But, during the same period the per capita National Income increased by little more than twice: from Rs. 264 in 1950-51 to Rs. 577 in 1970-71. The increase in the educational expenditure has, however, been at current prices and does not indicate the real increase. During 1951-56, the wholesale price index increased by one and one-half times, indicating thereby that the per capita expenditure on education in real terms increased from Rs. 3.2 in 1950-51 to about Rs. 8 only in 1965-66, instead of Rs. 12.8 as indicated in the Table.

If we turn to Table 1 we shall find that elementary education started very well with a claim of as much as 56 per cent on the total outlay in the First Plan, which diminished to 35 per cent in the Second Plan, 30 in the Third Plan, 20 in the period 1966-69, but went up to 28.5 per cent in the Fourth Plan period. The outlay on teachers' training diminished from 4 per cent in the Third Plan to 3 per cent in the period 1966-69 and 2.6 per cent in 1969-74. The outlay on technical education started with a small 13 per cent in the First Plan, rose to 18 per cent in the Second Plan, to 21 in the Third Plan and to 25 in the period 1966-69, but descended to 15.2 per cent in the Fourth Plan period.

Table 3. **Suggested sub-headwise outlays on education during 1974-79**

(Rs. in millions)

Sub-Head	Fourth Plan		Fifth Plan	
	Outlay	Percentage to Total	Outlay	Percentage to Total
(1) Elementary Education	2,347.4	28.5	10,300	46.8
(2) Secondary Education	1,183.2	14.4	3,000	13.6
(3) University Education	1,835.2	22.3	3,700	16.8
(4) Teacher Education	211.7	2.6	500	2.3
(5) Social Education	83.0	1.0	500	2.3
(6) Cultural Programmes	124.9	1.5	250	1.2
(7) Other Programmes	1,187.5	14.4	1,850	8.4
a. Physical Education and Youth Welfare and Games	200.0	2.4	500	2.3
b. Development of Languages	149.8	1.8	430	2.0
c. Educational Planning and Administration *	489.7	5.9	150	0.7
d. Scholarships	153.0	1.9	500	2.3
e. Libraries	25.0	0.3	100	0.4
f. Book Production	170.0	2.1	170	0.8
(8) General Education	7,010.7**	85.1	20,100	91.4
(9) Technical Education	1,231.7	14.9	1,900	8.6
(10) Total Education	8,242.4	100.0	22,000	100.0

* Includes other programmes where allocation is negligible

** The Fourth Plan outlays at items 1-7 add up to Rs. 6972.9 million whereas the outlay shown against item 8 is Rs. 7010.7 million. The sub-headwise break-up of the difference of Rs. 37.8 million is not available.

On the other hand, secondary education started with a 13 per cent of the total outlay in the First Plan, went up to 19 per cent in the Second Plan, climbed down to 18 in the Third Plan, to 17 in the period 1966-69 and 14.4 per cent in the Fourth Plan period.

University education, however, has been exhibiting a steady trend of increase, from 9 per cent of outlay in the First Plan to 18 per cent in the Second Plan, 15 per cent in the Third Plan, 24 per cent in the period 1966-69, and to 22.3 per cent in the period 1969-74.

Table 3, taken from the same Report, gives the suggested subheadwise outlays on education in the Fifth Plan period, 1974-79.

This Table shows a welcome restoration of emphasis on outlay in elementary education and a corresponding reduction on secondary and university education. But it could have showed more consistency if instead of reducing the proposed outlay in teachers' education it had increased it as well as the outlay on social education, which undoubtedly includes adult education, and cries out for attention in the subcontinent. The most noticeable inconsistency centres on the outlay on technical education which goes down from 14.9 per cent in the Fourth Plan to 8.6 per cent in the later Plan. This dimension of outlay on technical education will obviously be quite inadequate to siphon off pressures that are likely to arise for admission to secondary and university education streams.

IX. Public and private support of education

It seems imperative in developing countries to differentiate between scales of capital investment on schools in rural and urban areas and backward areas. It also seems imperative to devise ways of enlisting voluntary contributions from the community. Education is a state responsibility in developing countries, but the area of voluntary and private effort must be expanded to cope with the problem of population dynamics. Otherwise, the spiralling of costs of salaries linked to the wholesale price indices will eat up additional allocations without conferring any real benefit to additional populations. In most developing countries primary and secondary education has essentially depended upon private munificence. The contribution of the Buddhist churches in Sri Lanka, Burma, Thailand and the countries of Indo-China have been enormous: the near universal literacy in all these countries was really more an inheritance from the Buddhist churches than from the present educational system. There are still instances in the Indian subcontinent where the bulk of the capital outlay on school buildings, furnitures, etc. in many parts of these countries depended upon either public charity or on small compulsory contributions levied on each household [1]. Even now, teachers in many places are sustained not by the government treasury, but contributions from the rural community by way of services, clothing, housing, transport etc. It will be beyond the capacity of many developing countries to enforce universal primary education without restoring these channels of private investment into education. These countries may also have to make it compulsory for all educated persons to do teaching stints in what may be called an operation bootstrap in the educational field, to bring themselves to universal literacy within a fixed time horizon.

X. Population education

One of the major educational objectives that is fortunately coming up for serious consideration at all rungs of the educational ladder is population education. This has acquired particular urgency not only on account of the seriousness of the threatened impact of population dynamics on the capacity for economic and social investment, but also on account of the serious notice that the growth of population per se has received in the past decade and is going to receive in the World Population Year. There is the possibility of a large range of governmental and non-governmental institutions, trusts and foundations wanting to put their money into population education programmes. Besides population education, few countries have yet built up any worthwhile programme of imparting sex education to young and adolescent pupils. Population education, which some people may imagine to be a simple subject to weave into school curricula, can prove a complex proposition, because this universe of discourse can easily engender inconvenient questions in the minds of young people and make them hostile to what they may regard as inadequate government programmes for economic and social development. This is certainly not an area for eager beavers.

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[1] I quote from a comment received: "In the major towns of India, like Delhi, Bombay, Calcutta and Madras, regional and at times religious groups form themselves into what are called 'associations' - registered bodies - and run schools, particularly up to the higher secondary level. These associations levy on the parents of each child admitted and educated in these schools what are called 'donations', parents belonging to the poorest class being exempted (but such exemptions are few and far between). And these donations are not only utilised for capital expenditure on school buildings, additional furniture, provision of laboratory equipment, etc., but also go in for recurring expenditures providing many kinds of amenities to the schoolchildren. At the same time, the Government's policy is said to be 'free education' up to class VIII. But a comparison of the number of schools that have sprung up on 'donations' and the investments, capital and recurring, that go into the administration of these schools on the one hand, and of the number of schools set up by Government and local administrations and the funds invested on such schools on the other, will perhaps be revealing.

At an ECAFE Seminar devoted to cost-benefit approaches to family planning, the present writer observed that "the cost-benefit technique demonstrates the superior effectiveness of a family planning programme over investments in alternative projects to such an overwhelming degree as to be almost self-defeating.

Shorn of complexities, the benefit of a new child to a family may be expressed as follows:

$$\text{Benefit of another child (desire for an additional child)} = \frac{\text{`Value' of child}}{\text{`Cost' of the child}} \times \text{Increment in income}$$

This, on any showing, will be the ultimate heart of the matter in population education. The benefit of a child diminishes to the extent that the value of a child is reduced and its cost increased. The 'value' of a child will diminish to the extent that its labour will no longer be required in household chores or in agricultural operations or in attending to miscellaneous business, like running errands or standing in queue at the stores. In western countries, the value of a child is rapidly diminishing on account of improvements in domestic fuels, domestic appliances, improvements in home delivery systems along with improvement in other labour-saving devices and implements. The value of a child has also diminished on account of the extensive insurance and social security network, as well as health and other welfare services that have developed particularly in the present century. On the other hand, the cost of a child has gone up, firstly on account of the enforcement of universal primary education which keeps children from being employed at home or on the farm until they have grown up, and secondly on account of the tremendous increase in employment opportunities for women outside the home, in consequence of which women find it more and more burdensome and undesirable to go in for more children than they need. The cost of a child has threatened to far outweigh other opportunity costs of prospective mothers. There are also many other ways in which the cost of the child has gone up and is ever on the increase.

In any worthwhile scheme of population education it is important to relate the message of education to the realities of the value and the cost of the child in particular historic, social and economic situations, and in the context of the prevailing governmental policies affecting these two value premises. If the governmental policies affecting these two value premises are not strong or positive enough, the message of population education is likely to be lost or regarded as odious. It is therefore essential to modulate the content of population education to those government policies which have direct or indirect bearing on reducing the value and increasing the cost of the child in a given situation.

2. EDUCATIONAL EXPANSION AND EQUALITY: CASE STUDIES

Demographic Trends and Educational Development in Japan since 1950

Education in Japan has undergone a remarkable development since the end of the Second World War and this has led to an important change in the distribution of the working-age population according to the level of education reached. To give just one example, whereas in 1940 the percentage of the working-age population to have received higher education was 1.7 per cent, in 1968 it was 8.0 per cent. Various factors have contributed to this development, among which, undoubtedly, the very rapid growth of the economy figured quite prominently. However, one should also note the rapid decline in fertility since 1950 which has certainly facilitated this progress. The interaction of the different variables which may influence the development of education is very complex and it would be pointless to try to isolate any one of them. Thus the aim of this study is not to estimate the impact of the decline in fertility on the progress made in education. Nor is it to suggest that a less rapid decline in fertility would have resulted in slower progress.

I. Demographic change in Japan

Population change in Japan since the end of the war is however of great interest, particularly when compared to that observed in other Asian countries. Therefore, it may be useful to analyse, as a basis for comparison, the relationship between population change and educational development and to illustrate in particular the role played by the various factors in the increase of expenditure and costs. It would then be possible to compare the specific situation of Japan with that of other Asian countries which have experienced different population trends and which, partly because of a more rapid growth of the school-age population, have not succeeded in making the same progress.

In 1912 the Japanese population was around 50 million. It passed the 100 million mark in 1967, and has thus doubled in a period of 55 years, that is, at an average annual growth rate of 1.3 percent. This increase is well below that observed at the present time in most Asian countries. In Japan, the decline in the death rate has been accompanied by a similar decline in the birth rate.

Even before the Second World War, the birth rate had begun to

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Summary of a paper by Ta Ngoc Châu and Leon Gani, International Institute for Educational Planning, Paris, France.

decrease, but very slowly. The crude birth rate dropped from 35 per thousand for the period 1920-24 to 29 per thousand at the beginning of the war. At the end of the war, Japan, like other countries, experienced a rapid increase in the birth-rate which was even higher than the pre-war level. This increase in fertility was, however, of very short duration because of the passing of the law on eugenic protection by the Japanese Diet in July 1948. The effects of this law began to be felt as early as 1950. The crude fertility rate which was 34.3 per thousand in 1947 went down to 17.2 per thousand in 1957. Thus, within a ten year period, it decreased practically by half. Since then, it has been more or less stable and only began to show a slight increase again in 1965. At the present time, it is 19.2 per thousand.

Excluding the war years, for obvious reasons, it can be said that the death rate decreased regularly. The crude death rate which was 23 per thousand in the early 1920's went down to 16 per thousand at the beginning of the war and to 7.8 per thousand in 1955. Since then it has continued to decrease but at a slower rate. At the present time it is 6.6 per thousand.

The fall in fertility since 1950 may be explained by both the decrease in the fertility rate according to age and by the later age at marriage. For example, the average age at which women first marry has gone up from 23 years in 1950 to 24.5 years in 1960. Since then, it has remained at this level, but has tended to decrease very slowly since 1966.

With this sharp fall in the birth rate, population growth has decreased. However, due to a parallel fall in the crude death rate, it has remained around 10 per thousand since 1956. It is to be noted that this positive balance between births and deaths does not give an exact idea of the long term trend. The net reproduction rate, for instance, fell below one at the end of the 1950's and the beginning of the 1960's. Since then, it has increased and is currently around one.

II. Population change affecting educational enrolment

The combined action of this trend in the birth and death rates has affected the school-age population at three periods, each period having different trends; a period of moderate growth corresponding to the fertility trends during the years 1935 to 1946, a period of rapid growth resulting from the increase in fertility in the immediate post-war years, and a period of decline as a consequence of the fall in fertility. These three periods are reflected first in the population corresponding to compulsory education, then in that corresponding to upper secondary education and finally in the population corresponding to higher education.

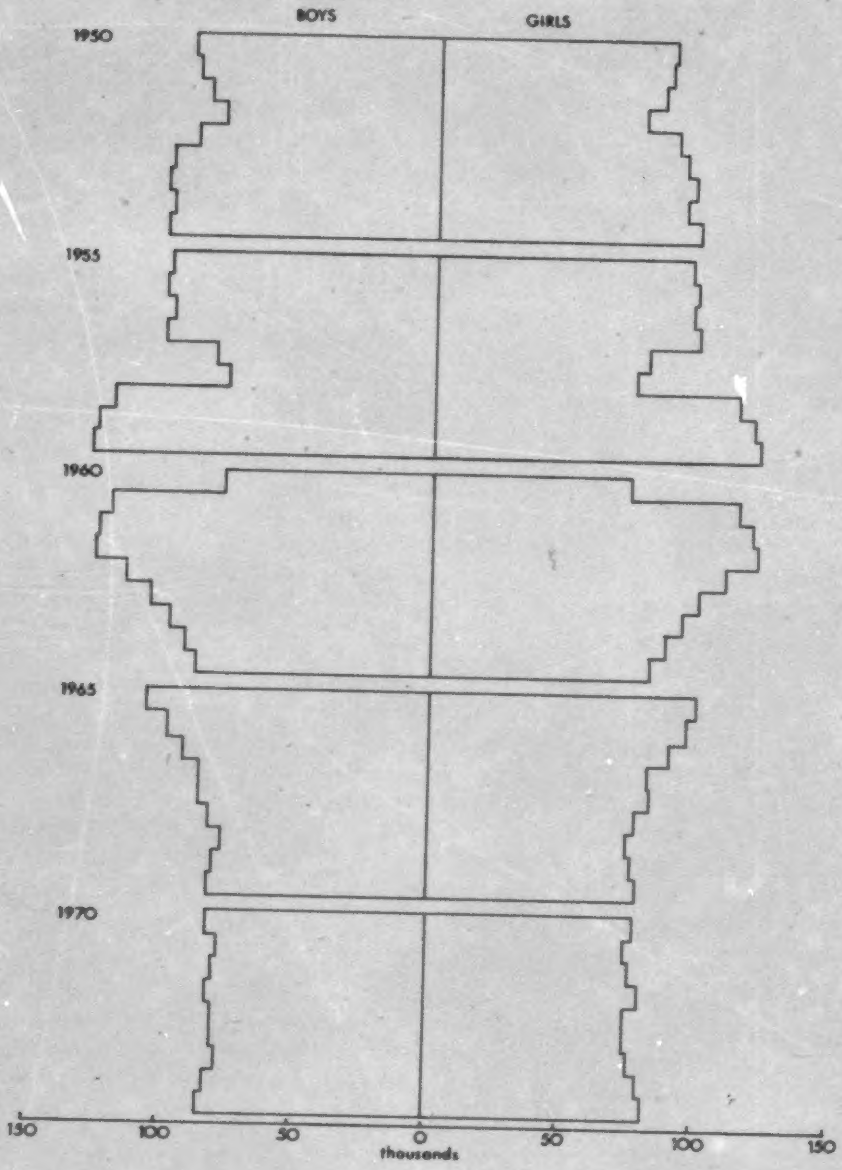
We thus have three different trends in the school-age population, reaching successively the three levels of education. It may be interesting, therefore, to see how these different trends have affected educational development, both from the point of view of the increase in enrolment ratios at the non-compulsory levels and from that of the improvement of teaching conditions:

The decline in fertility began to have an effect on compulsory education in 1962, on upper secondary education in 1965 and on higher education in 1969. Graph 1 illustrates the gradual effect of a fertility decline on compulsory education. Because of this lagged effect of fertility decline on the various educational levels, and especially because of the fact that in the non-compulsory levels of education the growth of enrolments does not depend only on the school-age population but also on the enrolment ratios, the increase in enrolments has been very different at the different levels of education. Taking the period 1950-68 as a whole, it can be seen that enrolments have fallen slightly in compulsory education, have multiplied by 2.1 in upper secondary and by 4 in higher education. However, what is to be noted above all is that unit costs at constant prices have multiplied by 7 in compulsory education, by 4.4 in upper secondary and only by 2.3 in higher education. The trend of unit costs has thus been exactly opposite to that of the increase in enrolments. In other words, the slowing down or the decrease in enrolments has not been matched by a slowing down of total expenditures but by an increase of unit costs. In the case of Japan, this has meant a narrowing down of the cost pyramid. While in 1950 unit costs in higher education were 8 times greater than those in compulsory education, in 1968 they were only 2.6 times so. The narrowing down is even more striking for upper secondary education. In 1968, in as far as unit costs are concerned, there is no significant difference between compulsory and upper secondary education, the difference being only 12 percent.

What is true in comparing the three levels of education is equally true for one level of education if we analyse each of the three periods described above. During periods when the population has increased slightly or *a fortiori* decreased, the enrolment ratios and unit costs have increased more rapidly.

In other words, it is during these periods that teaching conditions improved the most. In compulsory education. for instance, the number of pupils per teacher began to decrease in 1959, going from 33.4 to 24.3 in 1969. In upper secondary education, this ratio began to increase, particularly between 1960 and 1965 when the combined effect of a growing school-age population and increasing enrolment ratio led to a sharp increase in enrolments. Since then, it has declined and in 1969 the pupil/

Graph 1. Change in the pyramid of the school-age population corresponding to compulsory education



teacher ratio was 21.6. In higher education, where the fall in the birth rate has hardly begun to be felt, the number of students per teacher has increased regularly. In the universities, for example, this ratio has increased from 19.9 in 1955 to 25.6 in 1969. What has just been said regarding the improvement of the pupil/teacher ratio, is also true of the improvement of the qualification profile of the teaching staff.

Moreover, the enrolment trend at one level has a certain impact on the enrolment trends at the other levels of education. Thus, from 1962 onwards when, due to the decline in fertility, compulsory education enrolment began to decrease, the growth of enrolment in upper secondary education has clearly accelerated.[1]

While the growth of the school-age population has been fairly irregular due to fluctuations in the birth rate over the period, the growth of enrolment in non-compulsory education has been more regular. As a result the increase in enrolment ratios has been more or less erratic. This is especially true for the increase of new entries to higher education. From 1959 to 1962, the 18 year old population remained relatively stable and the admission rate increased moderately. From 1962 to 1964, this population decreased because of the birth deficit during the period 1944-46, and the admission rate increased steeply. In 1965, with the larger cohorts born in the immediate post-war years reaching the higher education level, the admission rate fell and only regained its 1964 level in 1968 when the effect of the decline in fertility began to be felt on the 18 year old population.

III. Educational expenditure and equality of opportunity

In spite of the decline in fertility which has led to a decrease in enrolment in compulsory education and even in upper secondary education, capital expenditure has increased regularly. This has resulted partly from the fact that population migration, notably from rural to urban areas, has made it necessary to build new schools in spite of the fall in enrolment. One consequence has been a considerable improvement in school buildings. Over the past decade, the percentage of schools built of wood has gone down from 90 per cent to 63 per cent for compulsory education and from 82 per cent to 40 per cent for upper secondary education. The growth of capital expenditure is even greater in higher education where enrolment has increased constantly. In 1965, for instance, the capital expenditure/recurrent expenditure ratio was 0.6 in public higher education and 0.9 in private higher education! In other words, capital expenditure was almost as high as recurrent expenditure.

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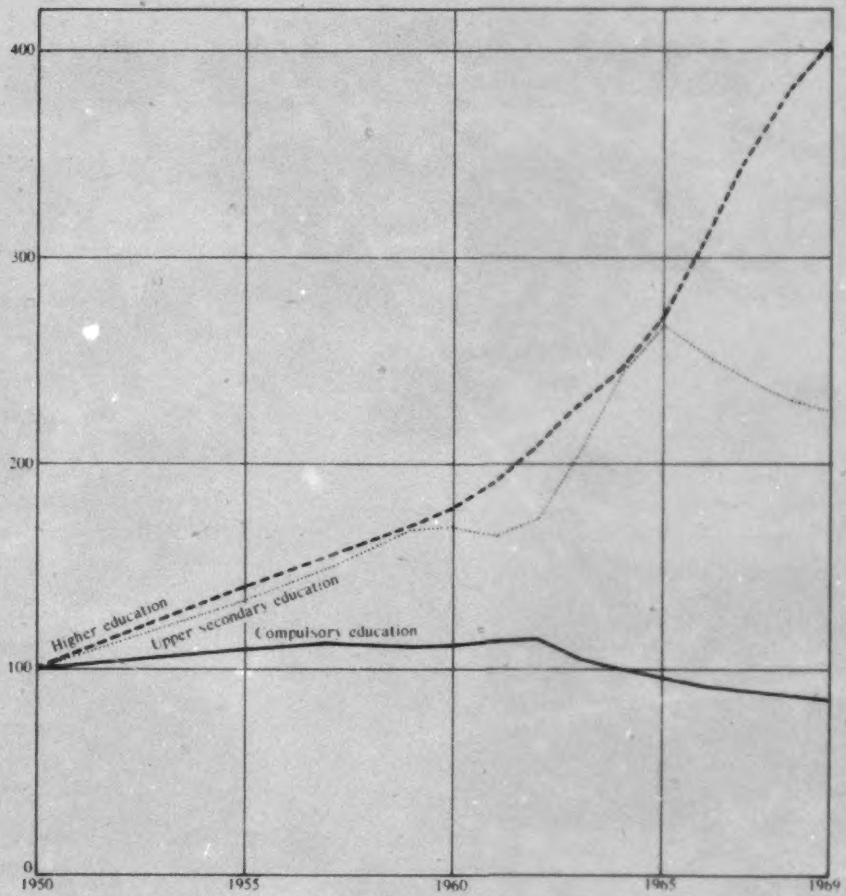
[1] - See Graph 2

GRAPH 2. Trend in enrolments in compulsory education, upper secondary and higher education (base: 1950=100)



On the whole, in spite of a decline in fertility, educational expenditure at constant prices increased at an annual rate of 12 per cent from 1950 to 1968, one of the highest rates in the world.[1] Related to National Income, the share of educational expenditure did not increase significantly, but this is a consequence of the exceptional growth of the Japanese economy over the last two decades.

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[1] See Table 1

Table 1. Growth of educational expenditure at constant prices (millions of yens, 1968)

Year	Public expenditure	Private expenditure	Total expenditure	Private expend. as % of total expenditure
1950	327,610	28,947	356,557	8.1%
1955	569,779	99,323	669,102	14.8%
1960	865,000	195,539	1,060,539	18.4%
1965	1,564,827	455,838	2,020,665	22.6%
1968	2,032,458	560,546	2,593,004	21.6%
Annual growth rate at constant prices				
1950-55	11.7%	28.0%	13.4%	
1955-60	8.7%	14.5%	9.7%	
1960-65	12.6%	18.4%	13.7%	
1965-68	9.1%	7.1%	8.7%	
1950-68	10.7%	17.9%	11.7%	

Remarkable progress has thus been achieved in the expansion of the school system as well as in the improvement of teaching conditions. It should be noted, however, that apart from compulsory education, access to education remains very unequal. It is unequal for girls as opposed to boys. It is unequal from one region of Japan to another; and it is especially unequal among different socio-professional categories. Whereas the percentage of upper secondary school graduates entering higher education is 70 per cent for children of company managers, it is only 9 per cent for workers' children.[1] Although these figures speak for themselves, they do not give the whole picture, since the proportion of workers' children who leave school at the end of compulsory education and consequently do not even enter upper secondary school, is much higher than for other socio-professional categories.

This inequality results from various factors, and one of these is the fact that, apart from compulsory education, all other education in Japan must be paid for. Although school fees represent a decreasing and relatively small part of recurrent expenditure on public education (in 1968 this part was 10.6 per cent for upper secondary and 4.8 per cent for higher education), fees in private education comprise almost the total expenditure. There is, in other words, a sizeable difference between school fees for the various types of institutions. In addition, private education has undergone much greater expansion than public education. In upper secondary education, enrolments in private institutions represent 32.7 per cent of total enrolment, but in the large cities this percentage is much higher. In Tokyo, for instance, it reaches 60 per cent. At the higher education level, private education is even more important. In 1969, enrolment in private education accounted for 75 per cent of total university enrolment and for 90 per cent of total Junior College enrolment.[1] Moreover, at this level of education, unit costs of private institutions are three times less than those in public education,[2] which would indicate that it is not altogether the same type of education. Finally, Japan is undoubtedly one of the few countries where educational expenditure financed from private sources (not including indirect expenditure borne by parents) has increased regularly, going up from 8.1 per cent in 1950 to 22.0 per cent in 1968.

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[1] See Appendix Table 1

It may thus be said that development of education in Japan has been influenced by a very strong private demand which has led to a rapid expansion of private institutions. In as much as tuition fees are relatively high in these institutions, this may accentuate the inequality of access between the various socio-professional groups, and may also lead to disparities in other respects: it is significant, for instance, that in the private universities enrolments are particularly high in arts (19 per cent) and in law and economics (47 per cent), precisely where unit costs are low. In public universities, enrolments are, on the contrary, high in science, engineering and agriculture. A slower expansion of public universities may thus be detrimental to certain technical subjects which are particularly needed in economic development.

IV. Educational development and increasing manpower needs

Furthermore, despite the rapid development of education, educational output is still not sufficient to meet Japan's need for qualified manpower. The ratio between supply and demand for upper-secondary school graduates, which was 1.2 in 1958, rose to 4.9 in 1968. Over the same period, the ratio for graduates from higher education has gone up from 1.1 to 5.7. The shortage of qualified manpower has become more and more acute.

Until now, the effect of the decline in fertility has only been felt in the school-age population, but in the future it will also be felt in the working-age population. From 1950 to 1970, the proportion of the population aged between 0 and 14 years fell from 35 per cent to 23.4 per cent.

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[1] See Appendix Table 2
[2] See Appendix Table 3

At the same time, the percentage of the working-age population (15-65 years) rose from 60 per cent to 69 per cent. However, as the population will become relatively "older" owing to the decline of fertility, the relative size of the working-age population will also decrease. Compounding this demographic process will be the decrease in the activity rate, resulting from longer studies. Entry to active life takes place at an increasingly later age. Undoubtedly, in the short term, this ageing of the population and the drop in the activity rate may be compensated for by increasing productivity as was true during the past decade.

Another compensating factor may be the greater participation of women, particularly in qualified occupations. This is only possible with the progressive elimination of certain social pressures and with a change in attitudes. At the present time, managerial and other highly responsible positions are almost inaccessible to women. Women graduates "do not generally find employment corresponding to their general culture and to the skills they have acquired. Moreover, most of the time, the young woman student does not continue her university studies with a precise aim in mind, since she knows that within the present social framework, she is not intended to have a professional career. Qualifications are thus vague, with a few exceptions, and she is content to wait for marriage."[1] It is significant that 82 per cent of students in Junior Colleges are girls whereas the percentage of girls enrolled in Universities is only 18.3 per cent.[2] In view of such constraints, and in order to solve the problem of manpower shortage resulting from economic development, some quarters have in fact been advocating policies to increase the birth rate again.

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[1] Hubert Bronchier, Le Miracle Economique Japonais, 1950-70, Paris, Calmann-Levy, 1970.

[2] See Appendix Table 4

Appendix 1. Percentage of upper secondary school graduates continuing their studies in higher education, 1968

Father's socio-professional category	No. of graduates from upper secondary	Admissions to higher education	%
Workers	73,000	7,000	9
Sailors and fishermen	17,000	2,000	12
Agricultural workers	315,000	43,000	14
Artisans and merchants	139,000	34,000	24
Employees in the private sector	321,000	105,000	31
Self-employed	148,000	64,000	43
Employees in the public sector	184,000	82,000	45
Liberal professions	27,000	13,000	47
Managers	23,000	16,000	70
Miscellaneous	47,000	10,000	21
Total	1,294,000	376,000	29

Source: Ministry of Education, *Unpublished documents*

Note: These figures concern 80% of graduates on whom we have the necessary data

Appendix 2. Enrolment in public higher education and the percentage of total enrolment

Year	Public education enrolment			Percentage of total enrolment		
	Universities	Junior colleges	Total	Universities	Junior colleges	Total
1959	210,999	16,269	227,268	36.1%	21.5%	34.4%
1961	220,174	19,518	239,692	33.7%	20.9%	32.1%
1963	236,612	21,799	258,411	30.6%	17.8%	28.9%
1965	257,702	21,663	279,365	28.3%	14.7%	26.4%
1967	296,234	24,218	320,452	26.4%	10.3%	23.6%
1969	326,784	26,042	352,826	24.8%	9.9%	22.3%

Source: Educational standards in Japan, 1970, op.cit., p. 207

Appendix 3. Recurrent unit costs and tuition fees per student as a percentage of recurrent expenditure in higher education (public and private)

(1968 yens)

Year	Recurrent unit costs		Tuition fees per student		Tuition fees as % of recurrent expenditure	
	Public	Private	Public	Private	Public	Private
1950	99,790	49,760	6,880	36,472	6.9	73.3
1956	157,350	63,560	15,737	42,869	10.0	67.4
1960	220,420	87,470	16,845	57,503	7.6	65.7
1965	331,076	92,920	17,410	87,090	5.3	93.7
1968	337,300	103,421	18,490	95,434	5.5	92.3

Source: Compiled from data in *Educational Standards in Japan, 1970, op.cit.*, p.251

Appendix 4. Enrolment of girls in universities and in junior colleges and their percentage of total enrolment

Year	Enrolment of girls			Percentage of total enrolment		
	Universities	Junior colleges	Total	Universities	Junior colleges	Total
1959	77,868	49,211	127,079	13.3	65.0	19.3
1961	94,880	63,675	158,555	14.5	68.2	21.8
1963	120,653	86,195	206,848	15.6	70.5	23.1
1965	149,971	110,388	260,359	16.5	74.8	24.6
1967	200,407	190,794	391,201	17.8	81.3	28.8
1969	240,488	216,601	457,089	18.3	82.2	29.0

Source: Educational Standards in Japan, p. 209

Some Results of Country Case Studies : Sri Lanka, Pakistan, Thailand, Singapore

Educational planning is a highly people-oriented activity whose ultimate aim, as with all planning, is to maximize the welfare of the population. But the day-to-day and year-to-year success of education is more intimately bound up with people on a personal and group level than is the success of, for example, a highway-building project, where technical considerations are dominant at the implementation stage.

Educational planning, dealing as it does with a "target population" which is constantly changing in number, age and sex composition and geographic distribution, must inevitably include a large dose of applied demography. For example, the rapid growth of particular suburban areas of large cities resulting from migratory movements can drastically alter needs for educational investment in particular areas in the short term, and hence a rational educational development strategy is imperilled by ignoring such movements.

Beyond this need for a technical demographic component in educational planning, however, is the need for educational planners to interest themselves in the broader questions of population trends and their implications. Educational planners cannot be content to sit back and "see what happens" to their target population. Trends in the proximate determinants of population growth-i.e. fertility, mortality and migration-will affect not only the ease with which educational goals will be attained, but also perhaps the very legitimacy of those goals as instruments for the attainment of optimum levels of welfare with the scarce resources available. Therefore longer-term educational planning cannot be divorced from considerations about population policy, based on a careful examination of the implications of alternative population trends for both the basic educational goals of the society and the possibilities of attaining these goals. Moreover, educational development will itself influence the nation's population trends; the interrelationships and flow-back effects between educational and population trends are both complex and significant. Educators, then, have no option but to give serious attention to population policy issues. It will be only through pooling the understandings about the implications of alternative population trends, gained by educational planners and other planners with regard to their particular area of responsibility, that a logical and reasoned national population policy can be developed.

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In the present paper, I would like to present some results from case studies of Sri Lanka, Thailand, Singapore and Pakistan which illustrate the effects of alternative population trends on the attainment of educational goals; the reverse effects, of educational trends on population growth, cannot be dealt with in the space of this short paper.[1]

I. Demographic structure as a barrier to educational progress: comparison of Thailand and Europe.

The countries with furthest to go in terms of educational development are, unfortunately, precisely those whose demographic structure is least favourable to achievement of universal and high quality education. The demographic barrier to educational progress in these countries can be demonstrated by an example: a comparison of Thailand with the countries of Europe-which will seek to isolate the effects of age structure on the burden of education by simulating to some degree the dynamics of the situation.

Thailand's crude birth rate in 1970 was approximately 41 per 1000, compared with 17 per 1000 in Europe, and the rate of population growth approximately 3.0 per cent compared with 0.8 per cent in Europe. 27 per cent of Thailand's population was aged 5-14, compared with 16 per cent in Europe. Thailand is still far from its stated goal of achieving 7 years' compulsory primary education for all children, but a pattern of educational development is hypothesized in this example which would lead to attainment of near-universal primary education, and significant improvement at higher levels of education, by the year 1990.

Let us suppose that we can put the educational clock back in Europe, and assume that Europe had achieved exactly the same enrolment rates for the various levels of education in 1970 as in Thailand. Suppose further that the recurrent costs per child in school[2] at the different levels were exactly the same in Europe as in Thailand. Using actual European labour force participation rates for Europe and South Asian rates for Thailand, we find that the costs of education per worker would be 84 per cent higher in Thailand (see Table 1).

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[1] They are discussed briefly in my paper "Effect of Population Change on the Attainment of Educational Goals in the Developing Countries," in National Academy of Sciences, *Rapid Population Growth: Consequences and Policy Implications*, John Hopkins Press, Baltimore, 1971, p. 351-5, and in rather more detail in my book *Population Growth and Educational Planning in Less Developed Countries*, Appleton Century Crofts (forthcoming), ch. 10.

[2] Educational costs are defined for our purposes to include government expenditure for public education and a slightly lower cost per student for private secondary schools, which provide approximately half of secondary education in Thailand. Costs do not include payments by students for uniforms, books, etc. or the opportunity costs of schooling.

For simplicity, assume that labour force participation rates and educational costs per child in school at each level do not alter after 1970, but that enrolment rates are improved. Table 1 shows the resulting trends in costs per worker, given expected population trends in Europe [1] and two alternatives for population growth in Thailand: one assuming a rapid decline in fertility after 1970, the other assuming only a slight decline. [2]

Costs per worker in Europe would rise from US$7.2 to US$11.9, mainly because of the improvement in enrolment rates; the population structure in Europe would alter very little during the 30-year period. In Thailand, costs per worker would also rise, but if fertility declined rapidly, those costs would level off by 1990 and then begin to fall. If a slower decline in fertility took place, costs per worker would continue to rise, but proportionately not as much as in Europe. This is because over time, the population structure in Thailand would be shifting in favour of the working-age as compared with the school-age population.

Columns 3 and 5 show the ratio of educational costs per worker in Thailand to those in Europe. The ratio falls over time, but even after 30 years of declining fertility in Thailand, educational costs per worker would still be 30 per cent higher than in Europe. If only a slow fertility decline took place, costs per worker in Thailand would still be 63 per cent higher by the year 2000.

If this example were applied to most developing countries, we would need to make further allowance for the fact that unemployment rates are higher than in the West. Hence the educational cost per employed worker would compare even less favourably with Europe. Since

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[1] The United Nations' medium projections were used. See United Nations, *World Population Prospects, 1965-2000, as Assessed in 1968*, (ESA/P/WP/37), 17 December 1970.

[2] In the former example, the general fertility rate was approximately halved in 30 years; in the latter, the general fertility rate declined by a quarter in 30 years, very slowly at first. Both projections assumed a slow but steady decline in mortality.

Table 1. Education costs per worker in Europe and Thailand, assuming Thailand's enrolment rates and costs per student apply in both cases.[1]

Year	Educational cost per worker		Excess cost in Thailand $\frac{(2)}{(1)}$	Educational cost per worker — Thailand (assuming only slight decline in fertility after 1970)	Excess cost in Thailand $\frac{(4)}{(1)}$
	Europe	Thailand (assuming rapidly declining fertility after 1970)			
	(1)	(2)	(3)	(4)	(5)
1970	7.2	13.3	1.84	13.3	1.84
1980	9.2	16.5	1.79	16.7	1.83
1990	11.1	16.6	1.50	19.1	1.72
2000	11.9	15.5	1.30	19.4	1.63

[1] Age specific labour force participation rates were held constant after 1970.

unemployment rates are not very high in Thailand, this factor has been ignored in the present example.

The two conclusions to be drawn from this example are that a decline in fertility in the developing countries would make for a population structure more favourable to rapid educational development, but that the legacy of the present high-fertility, heavily dependent age structure cannot quickly be removed.

II. Case studies: Pakistan and Sri Lanka

The benefits of declining fertility for the achievement of educational goals can be demonstrated in slightly more detail by presenting some results of case studies conducted in Pakistan and Sri Lanka.[1] The Pakistan study, conducted as it was before the creation of Bangladesh, includes Bangladesh (that is, the former East Pakistan) as part of Pakistan.

There is not space to set out all the underlying demographic assumptions in detail, but in both studies a slow decline in mortality levels was assumed, and three alternative trends in fertility hypothesized. In Pakistan the high projection assumes constant fertility after 1965, whereas the medium projection assumes moderate declines and the low projection more rapid declines (by 50 per cent in 30 years). In Sri Lanka, in all three projections fertility was assumed to reach the same low level in 1998 but by three different time paths: projection 1 assumed early and rapid fertility decline, projection 2 a steady fertility decline and projection 3 a delayed but accelerating fertility decline.

The resultant differences in population trends (see Table 2) are naturally sharper in the Pakistan example, where a state of constant fertility is being compared with fairly sharp declines in fertility; nevertheless, the important differences in population trends in the three different Sri Lanka examples illustrate the importance of the particular time-path of fertility decline that is followed.

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[1] Gavin W. Jones and Jayati Mitra, "*The Demographic Obstacle to the Attainment of Educational Goals in Pakistan*", Population Council, New York, 1969 (mimeo); Gavin W. Jones and Ashraf K. Kayani, *Population Growth and Educational Progress in Ceylon*, Caxton Printers, Colombo, June 1971.

Alternative trends in educational progress were also assumed: in Pakistan the enrolment rate approach was used, and slower and faster increases in enrolment rates compared with a situation of constant enrolment rates. In Sri Lanka the progression rate approach was used (as a proxy for more precise data on promotion, repeater and dropout rates), to approximate the study of the progress of each entry cohort of pupils through the school system. In this case, changing progression rates were compared with constant rates.

Table 2. Trends in numbers in schoolgoing age groups, Pakistan and Sri Lanka, according to alternative assumptions

Numbers in schoolgoing age groups	Base year	After 10 years	After 20 years	After 30 years	% increase, 30 years period
Pakistan (ages 5-17)					
High Projection	39,896	55,755	88,703	112,699**	182%+
Medium Projection	39,896	55,746	77,147	86,583**	117%+
Low Projection	39,896	52,644	62,926	65,618**	64%+
Sri Lanka (ages 5-19)*					
Projection 3	4,359	5,828	7,775	8,334	91%
Projection 2	4,359	5,605	6,569	6,782	56%
Projection 1	4,359	5,245	5,059	5,247	20%

* Fertility decline was assumed to begin 5 years before the base year.

** After 25 years

+ % increase, 25-year period

The effect of a decline in fertility on education enrolments is delayed because typically children do not enter school until they are aged 6. At upper levels of education, the lag is even greater: the secondary school students of 1984 are already born. Over time, however, the effect of a decline in fertility on school enrolments is quite marked. Take, for example, the case of Pakistan. If we assume a rapid rise in the primary school enrolment rate, from 34 per cent in 1960 to 90 per cent in 1985, then the percentage increases in enrolments in selected 5-year periods will differ as follows, according to whether fertility rates remain constant or decline:

Pakistan: Percentage increase in enrolments

	1965-70	1975-80	1985-90
High fertility	40%	50%	32%
Declining fertility	40%	29%	5%

Within 10 to 15 years of the onset of fertility decline, then, the growth of primary school enrolments has dropped substantially, to a rate little more than half that in the high fertility example. The implications of this sharp difference for educational planning are clear.

The same example for Pakistan illustrates the lagged effect of the fertility decline on secondary school enrolments compared with primary school enrolments. During the 15-year period following 1965, the increase in enrolments is as follows:

Primary school enrolments :	high fertility	208 %
	declining fertility	135 %
Secondary school enrolments :	high fertility	260 %
	declining fertility	234 %

By 1980, the effect of fertility decline has just begun to "bite" at the secondary level, whereas at the primary school level the absolute annual increase in enrolments at that stage is less than half that in the constant fertility projection.

The absolute saving in enrolments resulting from a decline in fertility is, of course, greater if enrolment rates are being raised. However, the relative saving in enrolments is precisely the same whether or not enrolment rates are raised. Viewed in this light, a rapid rise in enrolment rates does not "wash out" even slightly the enrolment advantage of reduced fertility. The relative saving in enrolments caused in any given time period by the decline in fertility can be altered only by altering the speed of that decline.

The saving in enrolments resulting from a decline in fertility are translated directly into savings in requirements for teachers if teacher/pupil ratios are left unchanged. It is here that the major savings in educational costs are effected, because teacher salary costs typically constitute 60 to 80 percent of the total recurrent costs of an educational system.

However, beyond the question of teacher requirements *per se*, there are a number of other questions that are of crucial concern to educational planners. For example, will it be possible to increase the ratio of fully-trained to untrained teachers? If the rate at which trained teachers are produced by the teacher training colleges is given, then a slower increase in pupil numbers resulting from a decline in fertility will clearly lead to a more rapid increase in the proportion of trained teachers in the school system. This is because the given number of trained teachers being produced will constitute a higher proportion of the annual increment needed in the teaching force than if school enrolments were increasing more rapidly. But the aim may differ from this. For example, the goal may be to ensure that all new teachers entering the teaching force are fully trained. What will be the required number of enrolments in teacher training colleges from year to year to ensure that this goal is realised?

In answering this kind of question, the weakness of the "enrolment rate" approach becomes evident. More detailed annual estimates of enrolments and teacher requirements using the "grade-cohort" approach are needed. In the Sri Lanka study, after estimating annual enrolments and teaching force required, needed enrolments in teacher training institutions each year were projected backwards, using various assumptions about attrition rates, rates of re-entry of former teachers, etc.[1] The results of this exercise are shown in Figure 1. The goal was to ensure that all new primary school teachers after 1971 should be 2-year trained, implying the gradual elimination of uncertificated teachers, who at the beginning of 1970 constituted 25 per cent of all primary school teachers. The influence of the alternative paths of fertility is very pronounced. For example, in the 10-year period 1975-1985, well over four times as many teachers would need to be graduated from Teacher Education Institutes in projection 3 as in projection 1 (124,000 as compared with 26,000). The reason for these marked differences is that teacher training requirements are heavily influenced by changes in the number of pupils, and alternative paths of fertility have a much sharper effect on the increment to the student population than on the absolute size of that population.

It is clear from Fig. 1 that when there is no attempt to improve progression rates, projection 1 would require little rise on the recent enrolments in Teacher Education Institutes to ensure that all new teachers are fully trained; in fact, from about 1975 to 1988 even fewer enrolments would be required than in recent years. By contrast, projection 3 would require more than a doubling of such enrolments by 1980. In the example, with improving progression rates, the absolute gap between the two projections is even wider. This serves to illustrate the great importance of the particular time path of fertility decline that is followed: it must be remembered that fertility in Sri Lanka is assumed to reach the same low level in 1998 in all three population projections.

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[1] The following assumptions were used in these calculations:

(a) That dropout from the teaching force is 4 per cent per annum.

(b) That entry into the teaching force of trained teachers other than those just graduating from the Teacher Training Institutes is 1 per cent per annum. (These would be mostly former teachers re-entering the service).

(c) That dropout from each year of the teacher training course is 3 per cent per annum.

III. Savings in educational costs resulting from lowered fertility

By making reasonable assumptions about trends in certain key components of educational costs (e.g. teacher salaries for various categories of teachers, non-teacher recurrent costs, capital costs per new pupil place) it is possible to project the costs of meeting given educational goals, according to different trends in population growth, and hence to derive estimates of the savings resulting from lowered fertility, Of course, increases in the dollar costs of education, or in the dollar savings in educational costs resulting from lowered fertility, have little meaning in isolation: the G.N.P. and government budgets can also be expected to increase substantially over time. The key variables that should interest the planner are the projected trends in educational costs as a proportion of government budgets or of G.N.P., and the projected savings resulting from lowered fertility, also as a proportion of budgets and of G.N.P.

An example of the results of such a study are given in Fig. 2. In this study it was assumed that the growth of total G.N.P. would not be affected by the trend in fertility. This implies that per capita income will grow faster in the projection with more rapid fertility decline. This is consistent with the results of a number of macro-economic models which integrate demographic variables; however, other assumptions could also be used without greatly affecting the results.

According to the assumptions used, total costs increase spectacularly in all projections, but then so does G.N.P. Evidence on the relationship between educational costs and G.N.P. is given in Figure 2, which also shows the percentage of G.N.P. saved in the given years and according to the given targets if fertility declines rapidly. Clearly, the main factor governing trends in educational costs is trends in enrolment rates. Where these are held constant, the share of G.N.P. required for education rises only slightly especially if fertility declines; where enrolment rates

Figure 1. Sri Lanka: Required enrolments in Teacher Education Institutes. 1970-1991, to ensure that all new primary school teachers after 1971 are fully trained.

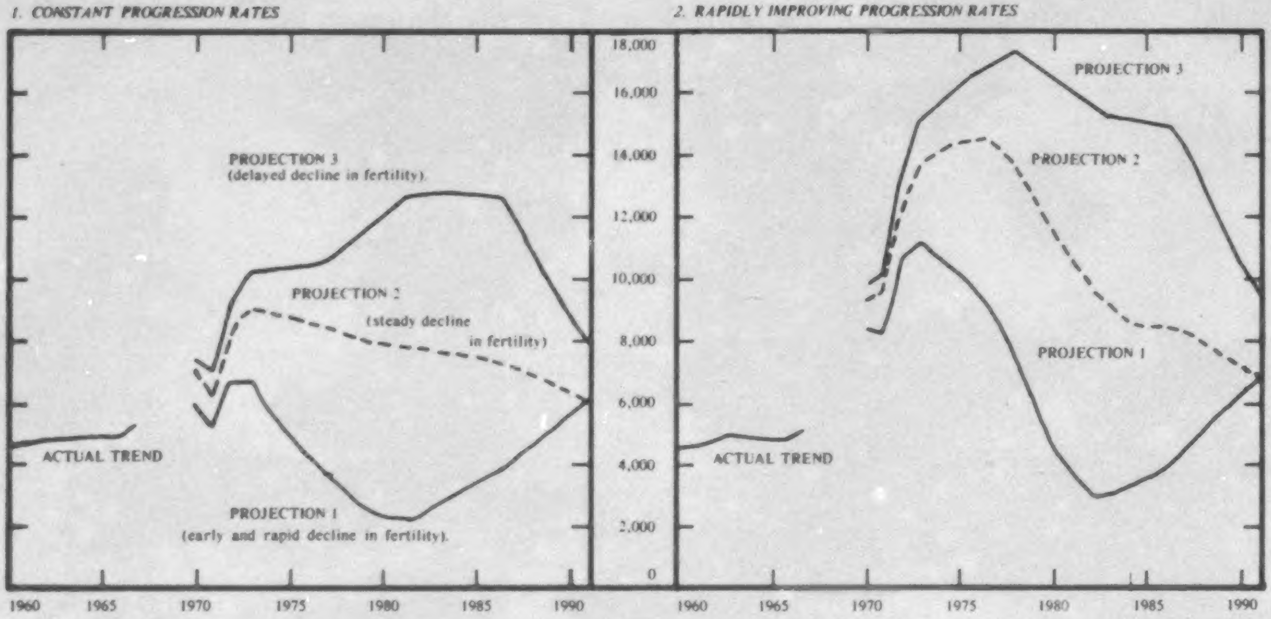
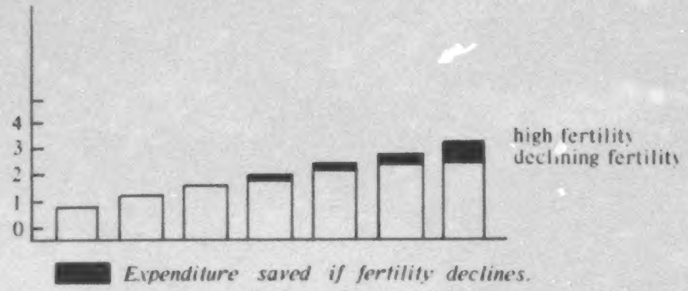
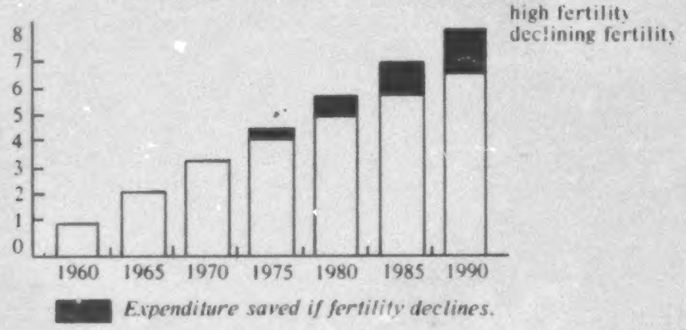


Figure 2. Education costs as a percentage of GNP, Pakistan 1960-1990

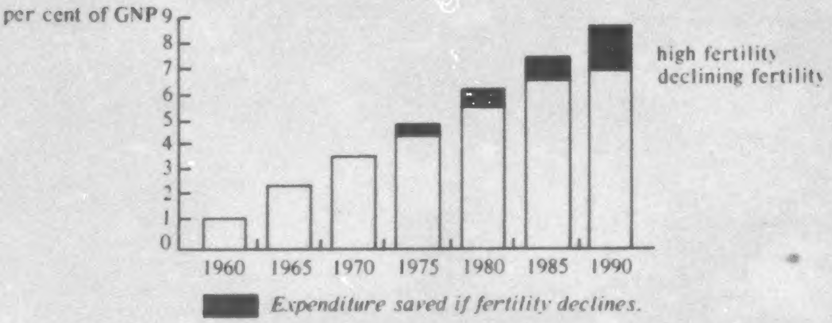
1. No rise in enrolment rates



2. Rising enrolment rates



*3. Rising enrolment rates, improving teacher/pupil ratios**



**Assuming that teacher salaries decline from 80 per cent to 65 per cent of total recurrent expenditure between 1960 and 1990.*

rise as postulated, this share multiplies, even if fertility declines rapidly.If pupil/teacher ratios are lowered as well, and the non-teacher salary component of recurrent costs raised, education's share of the G.N.P. climbs to 6 per cent and above by 1985, even if fertility declines rapidly. This figure does not include the costs of higher education, including teacher training, which will also be increasing and might well account for a further 1 or 2 percent of G.N.P. by the end of the projection period. At the present time 8 per cent of G.N.P. is as much as any country in the world spends on education, and although it would not be impossible for Pakistan to reach this level from the 1.7 per cent of G.N.P. actually spent on education in 1965, this would require a very basic reordering of priorities.

A rapid decline in fertility after 1965 will have very little effect on costs for about 10 years, but Figure 2 demonstrates that it will subsequently be of substantial benefit in the struggle to up-grade the education system, and its effect will grow cumulatively as time goes by. By 1990, for example, declining fertility would result in a saving of 1.6 per cent of the G.N.P. each year in reaching the goal of increased enrolment rates and improved pupil/teacher ratios: a figure almost identical to the entire share of the G.N.P. going to education in 1965.

In Pakistan, where enrolment rates are low to begin with, the massive increase in enrolments and teacher requirements needed to effect a rapid increase in enrolment rates is formidable, even in the absence of population growth. This in no sense weakens the case for population control. It merely underlines the point that a country such as Pakistan would find it impossible to provide universal, high quality education within a decade or two even if fertility were to decline quite rapidly.

The Pakistan case study yields results consistent with those of other Asian case studies. Given the aim of gradually improving school enrolment rates, annual educational costs were higher by the following percentages in the higher fertility projection in the various studies conducted by the author:

	After 15 years	After 25 years
Republic of Korea		
compared with rapid fertility decline	20%	72%
compared with slower fertility decline	18%	29%
Pakistan	10%	30%
Thailand	16%	33%
Sri Lanka	17%	54%

The wide differences in these figures are caused primarily by differences in the assumed speed of the fertility decline in the respective "low" projections.

The higher costs in the higher-fertility examples constitute a real drain on national resources. A significantly higher share of national resources will be needed to achieve the same improvements in the average educational level of the young adult population in the higher-fertility than in the lower-fertility projections. In the context of a strong commitment by governments of most developing countries to broaden the coverage and improve the quality of their educational systems, a very important result of a decline in fertility is to widen the options available to the planners. They can achieve a given improvement in the coverage and quality of the school system with a smaller commitment of the nation's resources than if the fertility level were higher. The resources saved could be used to:

(a) further improve the coverage and quality of the education system, or
(b) on other developmental activities; or
(c) on some combination of (a) and (b).

IV. Fertility decline and educational quality.

Of the three options mentioned in the previous paragraph as resulting from a decline in fertility, option (b): diversion of all the savings into other developmental activities — seems most unlikely to be followed. Indeed, given the way in which budgetary decision-making is usually done, it would be unrealistic to expect even a sharp and prolonged fertility decline to lead to much diversion of resources from education to other activities. (Nor perhaps should it, when viewed from a strictly cost-benefit vantage point). More likely, the gain from fertility decline will be through faster attainment of enrolment rate goals and qualitative improvements. This implies that the feedback from the fertility decline into the process of economic development via its effects on education will probably result in a faster rise in the proportion, but not number, of trained people in the young groups entering the workforce, and an improvement in the quality of the education which they (or some of them) are receiving.

In relation to this claim, a comparison between recent educational experience in Thailand and Singapore is instructive (see Table 3). Both countries achieved rapid economic growth during the 1960's, which permitted a sharp increase in educational expenditure. But population trends were quite different.

In Thailand, population growth during the 1960's averaged approximately 3.0 per cent per annum. Fertility levels were high and apparently rather steady, with the result that the annual number of births probably increased by about one third over the decade. The proportion of these babies surviving was also rising. Thailand had virtually achieved universal compulsory four years' education by the beginning of the decade; expansion of enrolments at this level had therefore to cope "only" with population growth. Early in the decade, however, the government committed itself to the expansion of compulsory schooling from 4 to 7 years of education. As a result, tremendous efforts went into expansion of the upper primary level of education, where a 125% enrolment increase was achieved. Even so, the goal of 7 years' compulsory education is still far from being reached: in 1969/70 the overall progression rate from 4th to 5th grade was still only about 44 per cent,[1] and in 1970 the ratio of upper primary enrolments to the numbers of children aged 11-13 was only 30 per cent. Repetition rates in the primary schools have remained rather high, but the average educational qualification of the teaching force has risen, and this may be partly responsible for the surprisingly large rise in the expenditure per pupil at the primary school level.

Secondary school enrolments almost doubled during the 1960's, most of the increase occurring towards the end of the decade, when the policy of restricting the growth of secondary enrolments appeared to break down under increasing pressure from the public. (The ratio of secondary school enrolments to the numbers aged 14-18 was still only 12 1/2 per cent in 1970). Enrolments in teacher training institutions increased rapidly, particularly toward the end of the decade, though in other institutions of higher education enrolments expanded at only about 6 per cent per annum, again due to deliberate restrictions on university entrance.

Singapore started the decade with a more advanced education system than Thailand. The goal of universal four years' primary education was almost reached, and enrolment ratios for the primary and secondary levels of education combined were 78 per cent of the relevant age groups, compared with 59 per cent in Thailand. Population trends during

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[1] Nicholas Bennett et al, "*Problems of Financing the Thai Educational System During the 1960's and 1970's,*" Educational Planning Division, Ministry of Education, Bangkok, June 1972 (mimeo).

Table 3. A comparison of educational development in Thailand and Singapore, 1960-70.

	1960	1965	1970	1960-65 % increase	1965-70 % increase
THAILAND					
1. Primary school enrolments ('000)	3,935.5	4,630.4	5,604.2	18	21
2. Secondary school enrolments ('000)	289.0	357.6	563.7	24	58
3. Tertiary level enrolments ('000)	50.6	53.4	71.0	5	33
4. Ratio of above primary to total enrolments	7.9%	8.2%	10.2%		
5. Recurrent government educational expenditures (current prices) (Bt. mill.)	1,409 (1963)	1,696	2,716 (1969)	59 [1]	80 [2]
6. Recurrent government educational expenditures per pupil (Bt.) [3]	350 (1963)	395	563 (1969)	35 [1]	56 [2]
7. Recurrent government expenditures on primary education per primary school pupil (Bt.) [3]	236 (1963)	287	408 (1969)	62 [1]	55 [2]
8. % of current education expenditure on primary school.	63.3 (1963)	68.3	67.6 (1969)		
SINGAPORE					
1. Primary school enrolments ('000)	291	363	366	25	1
2. Secondary school enrolments ('000)	59	115	146	93	27
3. Tertiary level enrolments ('000)	8	14	14	69	-1
4. Ratio of above primary to total enrolments	18.8%	26.2%	30.3%		
5. Recurrent government educational expenditures (current prices) ($ S'000)	57,100	112,806	184,492	98	63
6. Recurrent government educational expenditures per pupil ($ S)	159.5	229.6	350.9	44	53
7. Recurrent government expenditures on primary education per primary school pupil ($ S)	128.2	179.6	210.5	40	17
8. % of current education expenditure on primary school.	65.3	57.7	44.4		

Sources: Thailand—Nicholas Bennett et al, *"Problems of Financing the Thai Educational System During the 1960's and 1970's,"* Educational Planning Division, Ministry of Education, Bangkok, June 1972 (mimeo).

Singapore — Tan Peng Boo, *"Education in Singapore,"* Educational Publications Bureau, Ministry of Education, Singapore, 1970, Tables 3A, 12A and 14A; unpublished data supplied by Ministry of Education.

Notes: *Although educational expenditures are expressed in current prices, trends in inflation were roughly comparable in both countries. In Singapore, the consumer price index rose 12 per cent over the decade, compared with approximately 20 per cent in Thailand.*

[1] 1963-65 trend extrapolated to 5-year period.

[2] 1965-69 trend extrapolated to 5-year period.

[3] In these rows, government expenditures are related to the number of pupils in government schools only.

the 1960's contrasted dramatically with those in Thailand. In Singapore, fertility rates began to decline in 1957, and the decline was dramatic enough to halve the gross reproduction rate in 12 years. The absolute number of births fell from almost 62,000 in 1960 to less than 45,000 in 1969. This decline was reflected, with a lag of 6 years, in primary school entrants. However, numbers of prospective secondary school pupils will not begin to decline until the mid-1970's. By the mid-1960's, primary school enrolments had levelled out and by the end of the decade they were actually starting to decline. It was therefore possible to put strong efforts into the secondary and higher levels of education.[1] Secondary school enrolments were raised 146 per cent during the decade, and primary education's share in total educational expenditures over the decade declined from 65 to 44 per cent.

Apart from documenting the long lead time between a fertility decline and its effect on enrolments, what are the main implications of the Singapore-Thailand comparison?

One is that rapid population growth cannot be considered an insuperable barrier to educational progress. Thailand has made modest, but real progress in extending the coverage and improving the quality of its education system. However, there has been a good deal of "static expansion" to cope with rapidly increasing numbers of school-age children, and the basic structure of the school system has altered little. A roughly similar increase in public education expenditures in Thailand and Singapore has been associated with little increase in the ratio of post-primary to total enrolments in Thailand, but a sharp increase in Singapore.

A second implication would appear to be that it is unrealistic to expect a decline in fertility, even one as sharp as in Singapore, to lead to any considerable deceleration in the rise in educational expenditure. Certainly there has not yet been any slackening of educational expenditure in Singapore and none is in prospect, because along with the decrease in primary school enrolments there are plans for a marked expansion of secondary education, mainly through the expansion of technical and vocational education to take those pupils who are not fitted for the academic stream, and of post-secondary education, through opening new vocational institutes, a technical institute and a junior college. In addition, expenditure per pupil at each level of education has been increasing sharply, due to replacement of inadequate buildings, upgrading of the educational standards of the teaching force, and so on.

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[1] Higher education enrolments did not increase in the 1965-70 period, but by 1965 these enrolments already constituted 5 times the proportion of the relevant age group compared to Thailand.

In other words, the main contribution of fertility decline to educational development in Singapore has not been in slowing down the rise in educational expenditures, but rather in rapidly increasing the average educational attainment of young people and in improving the quality of the educational system.

V. Policy implications for population control efforts

Fertility decline, we have shown, yields substantial savings in reaching educational targets expressed in relation to the eligible population, and hence opens up the possibility of heightened developmental efforts in both education and other fields. This conclusion has immediate implications for the cost-benefit evaluation of efforts towards population control. If, in fact, effective means can be found to stimulate a decline in fertility which would otherwise not have occurred, or to accelerate a decline already under way, it will from an economic point of view be justified to invest in such means, up to the point where the rate of return on such investments is no higher than that on alternative developmental investments. In calculating the rate of return on investments in population limitation, the savings in costs of attaining given educational goals are of considerable importance.

Family planning programmes have been adopted almost universally throughout Asia in an attempt to lower fertility rates. Although evaluation of their demographic impact is a complex question, there is certainly evidence that they can have an independent effect on fertility levels.[1] It may therefore be of interest to compare briefly the costs of an expanded family planning programme in Asian countries over the coming years with the potential savings in educational costs resulting from various rates of decline in fertility.

The case study of Sri Lanka provides some useful evidence on this question. The costs of the national family planning programme (adjusted to include foreign contributions and imputation of costs not directly budgeted to the family planning programme) were projected on the assumption of further expansion of the programme in the early years, followed by a period where cost increases are geared to slow growth in the scope of the programme but gradually rising salary levels. Given these assumptions, it was calculated that the cost of a stepped-up family planning programme during the next 30 years would be greatly exceeded by the savings in educational costs, if the family planning programme caused population to follow Projection 1 rather than Projection 2 (i.e. sharp decline in fertility rather than steady decline in fertility). Indeed, savings in educational expenditures in Sri Lanka in such a case would be 7 times greater than the costs of an expanded national family planning programme.[1] Although we cannot calculate with any precision the impact of the family planning programme on the birth rate, these findings lead to one very important conclusion: *the potential savings in educational costs alone resulting from a family planning programme would exceed the cost of such a programme unless the effect of the family planning programme on fertility were very small indeed.* And of course many other economic benefits would flow from the decline in fertility apart from those arising in the education sector.

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[1] John A. Ross at. al., "Findings from family planning research," *Reports on Population/Family Planning*, No. 12, Oct. 1972, p. 2-9.

Similar results follow from parallel calculations by the writer for Thailand, and by O.P. Vig for India.[2] These results serve to highlight the importance of the population issue for educational planners, since the education sector can both help to generate, as well as to benefit from, a decline in fertility.

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[1]. Gavin W. Jones and S. Selvaratnam, *Population Growth and Economic Development in Ceylon*, Hansa Publishers, Colombo, 1972, chapter 11.

[2]. O.P. Vig, *Economic Impact of India's Family Planning Programme on School Age Population During 1971–1991*. International Institute for Population Studies, Bombay, n.d.

Implementing Universal Primary Education within A Context of Rapid Population Growth: The Problem of Regional Disparities with Special Reference to Thailand

I. Summary and conclusions

In the early 1960's, Thailand was one of the few Asian countries to have achieved universal primary education. Although the proportion of late entries was rather high — and this proportion is still sizeable at the present time—nearly every child was admitted into primary education. Taking into account the attainment of this important objective, one may have thought that from then on the expansion of primary education would only have to keep up with the pace of population growth. In the long run, the burden of primary education expenditure could even be alleviated with the possible decline in fertility. Under the pressure of private demand and because of a very high rate of population growth experienced in the past, enrolment had increased very quickly during the 1950's and the early 1960's. In addition, the implementation of universal primary education implied that education should be developed even in the most remote areas. This rapid increase of enrolment was not followed, however, by a parallel improvement of the teaching conditions. To some extent, the attainment of the quantitative target expressed in enrolment terms has been obtained at the expense of the "quality of education." At any rate, the repetition rate was high, especially in the lowest grades, and the proportion of unqualified teachers was sizeable, although significant progress has been made in recent years. In addition to this, the disparities between the various regions of the country have tended to widen and the teaching conditions are far from being the same in the different types of schools in the different changwads (districts).

This situation is in no way unique to Thailand. In many Asian countries and throughout the developing world, similar problems can be found. In many instances, they are even more acute.

This unequal development of education in the various regions of the country and the disparity which can be found in teaching conditions are of great concern to the Thailand Government, and among the objectives and policies stated in the Third Educational Plan (1972-76), two at least are directly related to this problem.

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(1) To accelerate the production of teachers to meet the demand. Also, to promote welfare and security for teachers, especially for those teachers living in regional or remote areas.

(2) To promote equality in education by improving and expanding education in regional areas. Also, to accelerate the organization of education suitable for each locality, especially in areas with special characteristics.[1]

A detailed analysis of the various aspects of the disparities in the development of primary education will be made later on in the study but we feel it would be useful to present here the main conclusions and to show some of the implications, at the regional level, of a general objective such as universal primary education.

Broadly speaking, there are three types of disparities:

- the disparity in the development of upper primary education in the various regions of the country,
- the disparity in the teaching conditions in the various types of schools and also in the various regions of the country,
- and finally, the disparity in the level of recurrent unit cost.

Whereas lower primary education is equally available throughout the whole country, the development of upper primary education is more limited and also much more unequal[2] In the metropolitan area and more generally in the urban areas, the transition ratio from lower to upper primary school reaches nearly 100 per cent but in rural areas it is much lower and it varies widely in the different parts of the country. It can be as low as 15.2 per cent in Udong Thani or as high as 81.4 per cent in Ranong. Of course, this inequality is even more pronounced in secondary education. In upper secondary, for instance, enrolment in the metropolitan area represents almost 60 per cent of enrolment for the whole kingdom.

The teaching conditions are also very different. They are different in the various types of schools. They are very good in the Ministry of Education schools, but much less so in the changwad schools which are mainly situated in rural areas. However, even among changwad schools there are very large differences in teaching conditions. While the average pupil/teacher ratio for the changwad schools as a whole is 35, this ratio ranges in fact from 23.2 in Pattani to 55.7 in Kamphaeng Phet. The same holds true for the qualification profile of the teaching force. The percentage of teachers having less than minimum qualifications ranges from 10.3 per cent in Prachuap Khiri to 48.5 per cent in Lampang. The disparity in the flow rates in primary education is also very great. Grade I repetition rate, for instance, varies from 11.7 per cent in Sakon Nakhon to 59.3 per cent in Chiang Rai. A detailed analysis of the situation in the different changwads does not show, however, any clear relationship between the flow rates and the pupil/teacher ratio or the qualification profile of the teaching force.

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[1] *Economic and Social Development Plan*, Chapter XVI, p. 2

[2] Primary education is divided into two stages : lower primary (4 years) and upper primary (3 years).

Teachers' cost being the most important component of total cost, the large difference observed in the pupil/teacher ratio and in the qualification profile of the teaching force has a direct effect on the level of recurrent unit cost. Obviously the level of recurrent cost is much higher in the Ministry of Education schools and in the municipal schools than in the changwad schools, but, here again, the range is very large in the changwad schools over the whole country. If the national average recurrent unit cost is used as a base, the recurrent cost index goes from 64.2 in Nong Khai to 147.8 in Nakhon Nayok.

From this brief analysis of the various aspects of the disparity in the development of primary education, it seems that some general conclusions can be drawn.

It is clear that a global target conceived as merely increasing enrolment for the whole country is certainly insufficient. This aspect of the problem has been clearly seen by the Royal Thai Government and in the current Five Year Plan, detailed projections have been made for each changwad.

A close analysis of these projections shows the important effort made towards equalizing the opportunities for children to progress to upper primary school in the different changwads.

It is also clear that an objective such as universal primary education will not be very meaningful if teaching conditions are not improved evenly in all the regions. In this perspective, a simple analysis of the resources needed, based on enrolment projections, will hardly be sufficient. The analysis should examine in depth the present school network. A detailed and careful analysis, at the regional level, of the school network, with particular emphasis on staffing characteristics, teaching conditions, and student achievement, may lead to some very interesting conclusions and may help in planning the modification of the school network in order to improve the teaching conditions. In the longer term, the planning of the expansion of the school network should have as its main concern the adaptation of the school network to local characteristics — of which population dynamics is a principal factor — and the best use of available resources, especially of teachers. In other words, a clear policy of school location based on a thorough analysis of the various regions of the country seems to be essential.

All these actions directed towards the remodelling of the school network will certainly not be successful if the financing method and the budgetary process is not improved in order to assure a more even distribution of educational resources.

Finally, and in a more general way, it should be said that the various disparities found in the school system are only one aspect of a much more general problem. Similar disparities also exist in the other fields of social and economic development. Any effort made towards the reduction of disparities in the school system would not be very fruitful if not accompanied by parallel efforts in other fields.

II. Disparities in the development of upper primary education

Primary education in Thailand is divided into two stages: lower primary education which lasts four years and upper primary education lasting three years. While lower primary education is available throughout the whole country and benefits almost every child, the development of upper primary education is more limited. During the last decade, the transition rate from lower primary to upper primary schools has increased greatly. It nearly doubled between 1961 and 1971, going up from .226 to .424. In spite of this rapid increase the distribution of upper primary schools is still very unequal and the opportunities for children to progress to upper primary education vary widely according to region. One way of showing this disparity is to compare the situation in the metropolitan areas (Bangkok-Thonburi) with that in the four geographical regions.

Disparity between the metropolitan areas and the four geographical regions

The distribution of enrolment at the various levels of education in the metropolitan areas and in the four geographical areas is indicated in the following table.

Table 1. Distribution of enrolment in Bangkok-Thonburi and the four geographical areas in 1971

	Bangkok-Thonburi	South	Central[1]	North	Northeast	Total
Lower primary						
Number	377,200	627,100	1,129,900	1,072,400	1,658,800	4,865,400
%	7.75	12.89	23.22	27.04	34.10	100.0
Upper primary						
Number	163,200	143,600	281,200	165,000	225,000	978,000
%	16.67	14.69	28.76	18.87	23.01	100.0
Lower secondary						
Number	141,100	74,300	130,200	81,200	91,800	518,600
%	27.21	14.33	25.10	15.66	17.70	100.0
Upper secondary						
Number	39,600	5,500	9,800	6,800	5,500	67,200
%	58.93	8.18	14.58	10.12	8.19	100.0
TOTAL	721,100	850,500	1,551,100	1,325,400	1,981,100	6,429,200

[1] Excluding Bangkok-Thonburi

As can be clearly seen, the distribution of school places becomes more and more unequal the higher the level of education. Nearly all children are admitted into lower primary but the possibility of advancing from lower primary to upper primary and to secondary school is very different in the metropolitan areas and in the other regions.

Whereas enrolment in lower primary in Bangkok-Thonburi represents only 7.8 per cent of total lower primary enrolment, its proportion of total upper primary enrolment goes up to 16.7 per cent. This inequality is even more pronounced in secondary education and particularly so in upper secondary where enrolment in the metropolitan area represents almost 60 per cent of the enrolment for the whole kingdom. In contrast, in the north-east region where enrolment in lower primary is 34.1 per cent of total enrolment, enrolment in upper secondary is only 8.2 per cent.

Another way of showing the unequal development of education is to compare the school pyramid of the metropolitan area with those of the other regions. Giving the value of 100 to lower primary school enrolment (lower primary being more or less evenly spread out over all the regions), the relative value of enrolment for the other levels of education is as follows:

Table 2. Enrolment in the various levels of education according to region, 1971 (with base = 100 for lower primary)

	Bangkok-Thonburi	South	Central	North	Northeast	Total
Lower primary	100	100	100	100	100	100
Upper primary	43.3	22.9	24.8	15.4	13.6	20.0
Lower secondary	37.4	11.8	11.5	7.6	5.5	10.6
Upper secondary	10.5	0.9	0.9	0.6	0.3	1.4

On the basis of the same enrolment in lower primary, enrolment in upper secondary would be 12 times higher in Bangkok-Thonburi than in the south and central regions, 18 times higher than in the north region and 35 times higher than in the northeast region! Even if we limit ourselves to the transition between lower and upper primary school, the difference is still very large.

In addition to this disparity between the metropolitan area and the other regions of the country, there are also large differences between the different types of school.

Disparity between the different types of school

Before 1959, the entire educational system was the responsibility of the Ministry of Education with the exception of only a few special institutions. Since then, large sections of the system have been gradually transferred to other organizations. In 1963, all the elementary schools situated in municipal areas were transferred to the municipalities. In 1966, all remaining elementary schools were transferred to the local authorities at changwad level. Both the municipal schools and the changwad schools fell under the control of the Ministry of the Interior. Thus, the Ministry of Education was left with only a few hundred experimental schools. It is however still in charge of the pedagogical, curricular and supervisory aspects of primary education. There are currently four broad types of primary school:

- Ministry of Education "experimental" schools
- Changwad schools
- Municipal schools
- Private schools

All municipal schools are obviously in urban areas. The same applies to Ministry of Education experimental schools. Private education is also available in urban areas. The typical primary school in rural areas is therefore the changwad school. In 1970, the distribution of enrolment in these different types of school was as follows.

Table 3. Distribution of enrolment in lower and upper primary education by type of school.

	Lower primary		Upper primary	
	Number	%	Number	%
Ministry of Education schools	87,748	1.9	123,415	13.8
Municipal schools	215,749	4.5	59,089	6.6
Changwad schools	3,926,749	82.8	419,772	46.9
Private schools	510,571	10.8	291,946	32.7
Total	4,740,817	100.0	894,222	100.0

The above figures show clearly that upper primary education is much less extensive in the changwad schools than in the other types of school. Whereas enrolment in changwad schools represents 82.8 per cent of total lower primary enrolment, their proportion of upper primary enrolment is only 46.9 per cent. As a result, the transition ratio between lower and upper primary education is only .267 for changwad schools, while it reaches .425 for the system as a whole. Of course, these ratios are only average ratios. In fact their range is very large when the situation in the different changwads is analysed.

Disparity in the development of upper primary education in the various changwads

For administrative purposes, Thailand is divided into twelve educational regions. In each of these regions there are 4 to 8 changwads and the total number of changwads is 71. The following table gives the average transition ratio between lower and upper primary school for the twelve educational regions. These regions have been classified according to the value of their transition ratio. For each region, in addition to the average transition ratio, we have also indicated the changwads with the highest and lowest ratio.

In general, the transition ratio from lower to upper primary school is higher for the system as a whole than for the changwad schools

Table 4. Transition ratio from Grade IV to Grade V for the various education regions of Thailand

	Transition ratio from Grade IV to Grade V All schools			Transition ratio from Grade IV to Grade V District schools		
	Whole Region	Highest Changwad	Lowest Changwad	Whole Region	Highest Changwad	Lowest Changwad
Region 9	19.5	23.6	15.2	12.8	23.9	10.4
Region 11	20.4	22.3	17.3	15.1	16.8	11.7
Region 10	24.1	26.1	20.6	16.2	23.7	11.4
Region 7	24.6	32.6	20.3	16.5	20.6	14.7
Region 8	27.3	54.4	20.7	17.4	42.4	11.5
Region 12	37.0	42.5	28.4	16.5	30.3	8.7
Region 5	39.0	72.2	29.6	28.7	72.3	20.3
Region 6	41.9	51.4	32.1	28.6	29.2	24.5
Region 4	42.1	81.4	34.9	26.5	78.7	17.6
Region 1a/	44.9	71.6	38.2	31.4	41.2	22.8
Region 2	47.8	70.2	43.1	33.3	38.3	29.6
Region 3	48.0	71.9	37.6	25.1	31.4	18.3

a/ Excluding Bangkok-Thonburi

taken separately. This is in line with what we have seen in the comparison of the various types of school. Access to upper primary school is very unequal for the different regions. The transition ratio ranges from 19.5 per cent in Region 9 to 48.0 per cent in Region 5. This inequality is however even greater between the various changwads of any one region. In Region 4, for instance, in the case of the changwad schools, the transition ratio ranges from 17.6 per cent in Trang changwad to 78.7 per cent in Phuket changwad. Finally, if we compare all the changwads, taking into account all primary schools and not only the changwad schools, the transition ratio may be as low as 15.2 per cent (Udon Thani changwad) or as high as 81.4 per cent (Phuket changwad).

This large variation in the transition ratio indicates the very unequal development of upper primary education in the different regions of the country. It also shows that the achievement of the target of a seven-year primary education implies a considerable effort towards equalizing the opportunities in the various changwads for children to progress to upper primary school. Action in this direction has already been taken and one of the goals of the Third Five Year Plan is to reduce this disparity. Detailed examination of the projection of enrolment in changwad schools shows that the greatest percentage increases in upper primary enrolment are scheduled precisely for those changwads which at the present time are furthest behind.

III. Disparities in teaching conditions

Here again, teaching conditions vary greatly from one type of school to another, and even more so when the situation of the various changwads is compared.

Disparities in the teaching conditions in the different types of school

a) Pupil/teacher ratio

The pupil/teacher ratio ranges from 23.8 in the Ministry of Education schools to 35.6 in the changwad schools. This large difference is due less to the average size of class than to the teacher/class ratio.

The average size of classes does not differ much in the various types of schools. It is lower in the changwad schools which are located mainly in rural areas where population density is lower. It is higher in municipal schools. On the whole, the class size in Thailand's primary education sector compares very favourably with that of other Asian countries.

The teacher/class ratio, however, varies greatly. The average ratio is 1.42 teachers per class in Ministry of Education schools and only 0.82

Table 5. Number of pupils, classes and teachers in different types of primary schools in 1970[1]

	Ministry of Education schools	Municipal schools	Changwad schools
Number of pupils	199,755	279,108	4,381,124
Number of classes	5,920	7,745	149,256
Number of teachers	8,401	8,857	122,899
Pupil/class ratio	33.7	36.0	29.4
Teacher/class ratio	1.42	1.14	0.82
Pupil/teacher ratio	23.8	31.5	35.6

[1] including pre-primary

in changwad schools. In other words, in many changwad schools one teacher is in charge of more than one class. The fact that the teacher/class ratio is rather high in the Ministry of Education schools can partly be explained by the percentage of enrolment in upper primary (where teachers are specialized in the different subjects) which is higher in Ministry of Education schools than in changwad schools. On the other hand, one should point out that in some remote areas not all teaching posts in changwad schools are filled because of the difficulty of recruiting teachers willing to go to these remote areas.

As a result of these large differences in the teacher/class ratio, the range of the teacher/pupil ratio is larger than may be expected from the class size. Although the class size is lowest in changwad schools, it is in the changwad schools that the number of pupils per teacher is the highest (36 as against 24 in the Ministry of Education schools). Clearly it is in the changwad schools that the situation is less favourable.

b) Teacher qualification profile

There are three basic levels of teacher training in Thailand:

- Bachelor of Education degree level
- Diploma level
- Certificate level

At the Bachelor degree level the most important teacher training institution is the College of Education with its seven branches throughout the country but most universities also offer courses leading to B.Ed.

In 1970, six universities out of eight had a faculty of education. The programme in general takes four years on completion of upper secondary education but there are also two year courses for teaching diploma holders.

Teachers at the diploma and certificate levels are trained in teacher training colleges. The diploma courses last for two years after upper secondary, and the certificate courses two years after lower secondary school. In addition, in 1967 a new accelerated certificate course was started, taking only one year after upper secondary school.

To these broad categories of teachers one should also add a fourth category, designated below as holders of "other certificates" and corresponding to teachers who have followed training programmes which have since been discontinued. Of course, there are also the unqualified teachers who have received a few years of secondary general or vocational education.

Bachelor degree teachers are rarely to be found in primary education. Typical primary teachers are usually diploma- or certificate-holders. There is, however, a large number of unqualified teachers who were recruited in the fifties and the early sixties because of the rapid expansion of primary education.

In general, the qualification profile of the teaching force has improved steadily over the past decade, and the number of unqualified teachers has decreased not only in relative terms but also in absolute numbers. Nevertheless the situation varies widely according to the type of school.

Table 6. Qualification profile of the teaching force in the different types of school

	Min. of Ed schools		Municipal schools		Changwad schools		Public primary education	
	Number	%	Number	%	Number	%	Number	%
Bachelor degree	758	8.0	213	2.4	713	0.6	1,684	1.2
Diploma	4,535	47.6	2,594	29.3	24,612	20.0	31,741	22.5
Certificate in Ed.	2,914	30.6	2,913	32.9	49,639	40.4	55,466	39.3
Other certificates	259	2.7	1,204	13.6	19,750	16.1	21,213	15.0
Unqualified	1,059	11.1	1,933	21.8	28,185	22.9	31,177	22.0
TOTAL	9,525	100.0	8,857	100.0	122,899	100.0	141,281	100.0

The qualification profile of the teaching force of Ministry of Education schools is rather good. More than half the teachers (55.6 per cent) hold either degrees or diplomas. In the changwad schools, the situation is much less satisfactory. The percentage of Bachelor degree or diploma holders is only 21 per cent, while almost a quarter of the teachers are unqualified.

In addition to this large difference in teaching conditions, or perhaps as a result of it, the "efficiency" of primary education varies also from one type of school to another.

c) Flow rates in the various types of school

Promotion in the Thai educational system is based entirely on examinations. An examination is taken at the end of each grade of primary education. In order to be eligible to sit the examination, a minimum attendance is required. In analysing the examination results, one should take into account three kinds of indicators:

- Examinees/enrolment ratio
- Passes/examinees ratio
- Passes/enrolment ratio

The examinees/enrolment ratio can be considered as an indicator of dropouts. Those who cannot sit the examination are those who have dropped out during the year or those who have not the minimum attendance required.

The passes/examinees ratio is restricted to the achievement of students, in as much as an examination can measure this. It relates therefore more to the teaching conditions.

Finally, the passes/enrolment ratio gives an overall picture of examination results. It depends both on the examinees/enrolment ratio and the passes/examination ratio.

The figures below show a rather specific pattern of examination results. The number of passes are much lower in Grade I and to a certain extent in Grade II than in the higher grades. They also show a large disparity between the various types of schools.

The examinees/enrolment ratio is very high in the Ministry of Education schools. It is low in the changwad schools and in the private

Table 7. Examination results in the various types of primary schools

Type of school / Grade	I	II	III	IV	V	VI	VII
Examinees/enrolment ratio							
Ministry of Education schools	98.0	98.5	98.9	98.2	98.9	99.1	99.5
Municipal schools	91.6	95.2	94.7	96.1	98.8	98.8	98.9
Changwad schools	89.1	96.0	99.1	99.6	95.1	95.1	96.6
Private schools	85.0	98.6	98.8	98.3	98.3	98.9	98.3
Passes/examinees ratio							
Ministry of Education schools	93.6	93.4	95.6	98.5	97.1	98.2	99.1
Municipal schools	82.6	93.0	90.6	98.3	95.5	97.2	98.7
Changwad schools	80.7	86.0	90.1	99.1	92.9	96.6	98.4
Private schools	86.8	95.3	96.1	98.9	96.1	99.1	97.9
Passes/enrolment ratio							
Ministry of Education schools	91.7	92.0	94.5	96.7	96.0	97.3	98.6
Municipal schools	75.7	88.5	85.8	94.5	94.4	96.0	97.6
Changwad schools	71.9	82.5	89.3	98.7	94.1	91.9	95.1
Private schools	73.8	94.0	94.9	97.2	94.5	98.0	96.2

schools. Early dropout and low attendance seem therefore to be more frequent in these two types of schools than in the others.

For the passes/examinees ratio, the position of the Ministry of Education schools is also much more satisfactory. One should note, however, that the disparities are large only at the beginning of primary education, i.e. in Grade I and in Grade II. In the higher grades, the difference is much less. From Grade III onwards the pass rate ranges from 90 to 99 per cent. The pass rate however is not very significant in so far as access to upper primary education is concerned. Those who pass the Grade IV examination do not necessarily gain access to Grade V. In reality, the possibility of passing from Grade IV to Grade V does not depend upon the achievement of the student but upon the availability of a school offering upper primary grades and, as we have seen, this differs from changwad to changwad.

Let us now turn to a more detailed analysis of the disparities in teaching conditions in the various changwads. For this purpose, we will restrict the analysis to the changwad schools.

Disparities in teaching conditions in the various changwads, [1]

As we have already indicated, from the point of view of administrative organization of education, Thailand is divided into 12 regions and 71 changwads. The size of these changwads is however very different. In 1968, the average enrolment in lower primary grades in changwad schools, per changwad, is 52,000 but it ranges from 169,500 in Ubon Ratchathani to less than 6,000 in Ranong.

The mean size of lower primary schools also varies very widely. One may think that there is some relationship between the mean size of the school and the class/teacher ratio. The smaller the size of the school, the higher the class/teacher ratio will be, the teacher being in charge of more than one class (i.e. more than one group of pupils at the same level). In fact, the rank correlation coefficient between mean school size and class/teacher ratio in the 71 changwads is very low (.156) and it is positive and not negative as we might expect it to be. In Nong Khai changwad, for instance, where the mean school size is 155.3 (for the four lower primary grades), the class/teacher ratio is 2.1 (one teacher for 2.1 classes). On the other hand, in Trat changwad where the mean school size is 91.7, the class/teacher ratio is only 1.3.

Table 8. Lower primary enrolment and mean school size in the three highest, the three median and the three lowest changwads, 1968

Rank	Changwad	Lower primary enrolment	Changwad	Lower primary mean school size
1	Ubon Ratchathani	169 548	Thon Buri	262.4
2	Nakhon Ratchasima	153 976	Samut Prakhan	214.0
3	Chiang Rai	151 251	Samut Sakhon	204.3
35	Trang	43 073	Cha Choeng Sao	142.1
36	Uttaradit	39 240	Pathum Thani	141.1
37	Kanchanaburi	39 235	Surat Thani	140.8
69	Phuket	7 921	Trat	91.7
70	Mae Hong Son	7 479	Ranong	82.2
71	Ranong	5 979	Mae Hong Son	77.1
	Mean enrolment	52 034	Mean school size	140.4

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[1] For the analysis of the disparities in teaching conditions and in the recurrent cost of changwad schools in the different changwads,we have benefitted very much from a previous study undertaken by Dr. Farner in the *Project to improve school finance practices in Thailand*, Bangkok, 1972

In other words, the class/teacher ratio is determined less by the size of the school (which, to some extent, depends on the density of population) than by the fact that some changwads seem to be in a better position to obtain additional teaching posts.

Of course, as one may imagine, there are wider disparities in the qualification structure of the teaching force, the teacher/class ratio, and the teacher/pupil ratio.

Table 9. Percentage of teachers with less than minimum qualifications, teacher/class ratio, pupil/teacher ratio in the three highest, the three median, and the three lowest changwads, 1968

Rank	% of teachers with less than min. qualifications		Class/teacher ratio		Pupil/teacher ratio	
	Changwad	Value	Changwad	Value	Changwad	Value
		%				
1	Prachuap Khirikan	10.3	Suphan Buri	0.9	Pattani	23.2
2	Phetchburi	11.9	Satun	0.9	Nakhon Nayok	24.1
3	Phattalung	11.9	Pattani	0.9	Mae Hong Son	24.3
35	Phra Nakhon	20.0	Buri Ram	1.2	Phrae	34.3
36	Nonthaburi	20.0	Surat Thani	1.3	Phang Nga	34.9
37	Ranong	20.4	Sakhon Nakhon	1.3	Samut Sakhon	35.2
69	Krabi	39.7	Chon Buri	1.9	Chiang Rai	44.4
70	Nong Khai	45.1	Nong Khai	2.1	Nong Khai	48.6
71	Lampang	48.5	Krabi	2.2	Kamphaeng Phet	55.7
	National Mean	23.0	National mean	1.3	National Mean	34.9

While the percentage of unqualified teachers is on average 23.0 per cent of the teaching force for all lower primary changwad schools, the percentage ranges from 10.3 per cent to 48.5 per cent in the various changwads. The difference is also very large for the class/teacher ratio and the pupil/teacher ratio. Here again, one may think that there would be some inverse correlation between the class/teacher ratio and the pupil/teacher ratio (one teacher is in charge of more than one class because the number of pupils per class is low). In reality, the rank correlation coefficient between the class/teacher ratio and the pupil/teacher ratio is positive and equal to 2.48. To illustrate the large disparities in teaching conditions which occur between the various changwads, a comparison may be made of the situation in Satun changwad with that existing in Nong Khai changwad.

	Satun Changwad	Nong Khai Changwad
Percentage of teachers with less than minimum qualifications	17.7	45.1
Class/teacher ratio	0.9	2.1
Pupil/teacher ratio	25.3	48.6

In Satun not only the percentage of teachers with less than minimum qualifications is low, but in addition there is more than one teacher per class. As a result, the pupil/teacher ratio is 25.3. In Nong Khai where almost half the teachers are unqualified, there is one teacher for 2.1 classes, and of course the number of pupils per teacher is very high. Although these indicators are very crude and give only a partial picture of the real situation, they do show the large disparities in teaching conditions which exist in the various changwads.

In spite of this very large difference in the teaching conditions in the various changwads, there does not seem to be any clear relationship between the "efficiency" of primary education and teaching conditions. Here again, the indicators are very crude. There is not yet any systematic evaluation of lower primary education by changwad. However, as we have seen, Grade 1 repetition rate is very high in Thailand, much higher than that of the other grades of lower primary education. The Grade 1 repetition rate can therefore be considered as a proxy indicator of the flow of students through lower primary school.

Correlating this indicator with some of the aforementioned indicators of teaching quality over the 71 changwads, we find the following rank correlation coefficients:

Variables	Rank Correlation Coefficient
Grade I repetition rate and percentage of unqualified teachers	.229
Grade I repetition rate and pupil/teacher ratio	.102
Grade I repetition rate and class/teacher ratio	.028

The correlation coefficient between Grade I repetition rate and the other three variables is very low. It would seem, therefore, either that pupil achievement in lower primary education depends upon factors outside the school system or that Grade I repetition rate in the various changwads does not reflect pupil achievement in a uniform way.

IV. Disparities in the recurrent unit cost of primary education

Although the financing pattern is rather different in the three types of schools, as analysed previously, it remains true for all three types that the government's share is very high. The trends of the costs borne by the government, from 1963 to 1969, are given in Annex 1.

During this period, total primary recurrent expenditures increased, on average, at an annual rate of 12.7 per cent while enrolment grew only at a rate of 3.5 per cent. Thus, the unit cost went up from 229 bahts to 439 bahts, i.e. at an annual rate of 9.0 per cent.[1]

The most important component of total costs is teachers' salaries which account for approximately 90 per cent of total expenditures. The proportion of teaching materials is particularly low. On average it reaches only 1.5 per cent of total recurrent costs.

The increase in teacher costs is explained mainly by three factors:

— the improvement of the qualification profile of the teaching force,

-- a slight reduction of the pupil/teacher ratio,

— an increase in the teacher salary scale.

The other recurrent costs (ancillary services, teaching materials and miscellaneous costs) grew more or less at the same rate as the teaching cost and during the sixties the cost structure has remained largely the same.

The macro-analysis presented above can give only a general trend of the average costs financed by the government. In reality, both the total recurrent cost and the recurrent cost borne by the government are very different in the various types of school.

Disparities in the recurrent unit costs of the various types of schools

Recurrent unit costs in primary education range from 430 bahts in changwad schools to 753 bahts in Ministry of Education schools. Teachers' salary cost being the most important component of total cost, the wide range of unit costs can be mainly attributed to staffing characteristics, which we have previously analysed. The recurrent unit cost is very high in Ministry of Education schools since, from the point of view of both the qualification profile of the teaching force and of the pupil/teacher ratio, they are in a much better position than the other types of schools. In contrast, the recurrent unit cost is much lower in the changwad schools where teaching conditions are far from being the same as those in Ministry of Education schools and where upper primary education is much less widespread.

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[1] During the same period, the price index increased at a rate of 2.5%

Of course, the above figures are national averages. In reality the range of unit costs is also very large for the schools under the same administration. This can be illustrated by the disparities apparent in the unit costs of the changwad schools in the different changwads.

Disparities in the recurrent unit costs of changwad schools in the different changwads

If the national average recurrent unit cost of all changwad schools is used as a base, the recurrent unit cost index ranges from 147.8 in Nakhon Nayok to 64.2 in Nong Khai. As already noted, teachers' salary cost is by far the largest component of recurrent unit cost. The difference in recurrent unit cost can therefore be mainly explained by the level of teachers' salary cost. Teachers' salary cost depends on two key variables: the qualification profile of the teaching force and the teacher/pupil ratio.

In Annex 2 we have given the index of recurrent unit cost, the pupil/teacher ratio and the grade 1 repetition rate. The data presented in that Annex call for the following remarks:

1. There is a close relationship between the recurrent unit cost index and the pupil/teacher ratio. This can be seen by comparing the various regions of the country; it is also evident in the case of the highest and the lowest changwad.

2. The percentage of unqualified teachers also influences the level of recurrent unit cost, but to a lesser extent. In Thailand, the difference between the average salaries of the various categories of teachers is not very great.

3. Apart from Region 2 in which the apparent intake ratio is low (54.5 per cent), the apparent intake ratio is above 85 per cent in the other regions.[1] It is also in Region 2 that the teacher/pupil ratio is lowest and the recurrent unit cost highest.

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[1] The apparent intake ratio should be interpreted very cautiously both because of late entries and because of the unreliability of population data by age of the various changwads.

4. There is no relationship between grade I repetition rate and the recurrent unit cost. This derives from the fact that grade I repetition rate seems to depend neither on the qualification profile of the teaching force nor on the pupil/teacher ratio.

By way of illustration, the following are the comparative values of the recurrent unit cost index, the pupil/teacher ratio, the percentage of unqualified teachers, and the Grade I repetition rate of the two changwads where the unit cost is the highest, and of the two changwads where the unit cost is the lowest:

Table 10. Recurrent unit cost index, pupil/teacher ratio, percentage of unqualified teachers and Grade I repetition rate in the two changwads where unit cost is the highest and in the two changwads where it is the lowest

	Two highest changwads		Two lowest changwads	
	Satun	Nakhon Nayok	Nong Khai	Chiang Rai
Index of recurrent unit cost	147.4	142.8	72.6	64.2
Pupil/teacher ratio	24.1	25.3	44.4	48.6
% of unqualified teachers	18.3	17.7	39.2	45.1
Grade I repetition rate	21.5	47.5	59.3	25.1

From the point of view of the recurrent unit cost index, the pupil/teacher ratio and the percentage of unqualified teachers, the situation is very much the same for the two highest changwads. Yet, Grade I repetition rate is 21.5 per cent in Satun and 47.5 per cent in Nakhon Nayok. The same holds true for the two lowest changwads where the Grade I repetition rate is 59.3 per cent in Nong Khai and 25.1 per cent in Chiang Rai, despite the fact that there is much similarity in unit cost, pupil/teacher ratios and percentage of unqualified teachers. This rather unexpected situation points to the need for a more in-depth evaluation of primary education, with greater emphasis on the factors which are outside the educational system stricto sensu.

Annex 1. Recurrent expenditures and unit costs of primary education borne by the government

(millions of bahts)

	1963		1964		1965		1966		1967		1968		1969		Annual growth rate
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	
A. *Expenditures*															
Teachers' salaries	793.0	88.8	953.3	89.2	999.1	85.4	1,088.5	89.9	1,177.7	88.1	1,349.1	93.9	1,615.4	87.9	12.6%
Wages	25.0	2.8	31.4	2.9	33.1	2.8	36.8	3.0	40.1	3.0	44.2	3.1	62.6	3.4	16.8%
Teaching material	11.0	1.2	14.7	1.4	16.6	1.4	18.6	1.5	20.6	1.5	22.8	1.6	28.8	1.6	17.4%
Others	63.6	7.2	69.1	6.5	120.3	10.3	67.2	5.6	98.3	7.4	20.7	1.4	131.3	7.1	12.8%
	892.6	100.0	1,068.5	100.0	1,169.1	100.0	1,211.1	100.0	1,336.7	100.0	1,436.8	100.0	1,838.1	100.0	12.7%
B. *Enrolments ('000)*	3459		3592		3757		3853		3967		4101		4262		3.5%
C. *Unit costs*															
Teacher cost	229.3		265.4		265.9		282.5		296.9		329.0		379.0		8.8%
Ancillary costs	7.2		8.7		8.8		9.6		10.1		10.8		14.7		12.7%
Teaching material	3.2		4.1		4.4		4.8		5.2		5.6		6.8		13.3%
Others	18.3		19.2		32.0		17.4		24.8		5.0		30.8		9.1%
	258.0		297.4		311.1		314.3		337.0		350.4		431.3		9.0%

Annex 2. Index of recurrent unit cost, pupil/teacher ratio and Grade I repetition rate in changwad schools according to region

	2	12	6	1	10	5	3	4	9	8	11	7	All regions
Whole region													
Index of recurrent unit cost	136.1	110.9	110.9	110.0	104.2	102.5	100.0	98.2	97.9	93.3	91.9	90.5	100.0
Pupil/teacher ratio	24.6	32.1	31.2	31.7	34.3	34.5	35.7	34.5	34.1	35.0	36.7	37.3	34.9
% of unqualified teachers	27.2	15.8	16.7	13.8	18.7	13.8	14.7	23.0	24.4	33.8	22.6	25.8	23.0
Apparent intake ratio1/	54.5	90.2	85.6	84.6	92.8	103.4	85.9	95.2	101.6	83.8	97.3	92.9	91.1
Grade I repetition rate2/	50.1	33.2	30.8	32.2	21.1	34.7	29.0	35.9	20.9	46.1	21.5	33.2	31.0
Highest changwad													
Index of recurrent unit cost	142.8	147.4	130.2	125.3	117.2	134.0	126.7	126.0	118.2	130.6	104.2	107.0	125.83/
Pupil/teacher ratio	25.3	24.1	30.6	28.7	30.1	29.2	29.7	29.8	29.2	24.3	38.8	31.6	29.33/
% of unqualified teachers	17.7	18.3	15.2	17.5	12.7	13.7	14.0	26.3	12.8	33.7	24.3	26.4	19.43/
Grade I repetition rate	47.5	21.5	27.7	26.8	13.0	31.5	24.3	31.7	14.1	53.0	28.2	36.2	29.63/
Lowest changwad													
Index of recurrent unit cost	128.3	95.4	86.3	99.6	87.4	92.3	93.7	90.5	64.2	72.6	89.1	73.3	89.43/
Pupil/teacher ratio	26.0	39.6	40.5	36.3	36.3	37.8	42.6	38.0	48.6	44.4	37.3	55.7	40.33/
% of unqualified teachers	35.9	16.5	15.1	12.2	32.5	17.6	15.6	39.7	45.1	39.2	23.8	27.1	26.73/
Grade I repetition rate	57.3	18.7	43.0	33.0	24.8	29.0	35.4	32.7	25.1	59.3	14.3	23.5	33.03/

1/ Total primary system (Ministry of Education schools, municipal schools, private schools and changwad schools)

2/ Changwad schools only

3/ Unweighted average

PART THREE

EDUCATIONAL ASPECTS OF RURAL-URBAN MIGRATION

1. THE PROBLEM

I. Background

Rapid and incessant flows of migrants, most of them originating in rural areas and bound for the big cities of Asia, are severely compounding the problems associated with high population growth and pose increasingly acute problems of regional disparities to development planners. Quite irresistibly, rural-urban migration moves to the fore as a crucial manifestation of population dynamics.

The big urban agglomerations and metropolitan centres are now expanding their populations at estimated annual rates of 4 to 5 per cent. As much as one fourth of this rapid increase may be due to in-migration from small towns and rural areas. In cities like Bombay, Bangkok, Jakarta, or Manila, up to two thirds of all inhabitants have at some point flocked into the city as migrants.

Such figures raise doubts as to whether the classical viewpoint of economists and demographers, viewing rural-urban migration as a necessary and normal process of adjustment whereby "economic man" rationally reacts to shifting occupational structures by gravitating to areas of increasing opportunities, is, in fact, still an adequate assessment of the problem. Rather, there are strong indications that the pace of rural-urban migration, as it is recorded in most Asian countries today, surpasses the limits of what is economically and socially desirable.

These migration patterns lead to a mushroom growth of gigantic urban agglomerations which already outnumber those in the more advanced countries imperilling the ecology of the cities and aggravating the problems of urban infrastructure planning, employment generation, and provision of adequate social and educational services. At the same time, excessive out-migration deprives the rural economies of the younger, innovative and productive part of their population. "Rural exodus", as this drive away from the village has come to be called, may in fact be a major reason why rural areas, and thus the economy of developing countries at large, have not achieved faster social and economic development.

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by Unesco Secretariat.

The first question those concerned with educational causes and consequences of rural-urban migration have to ask, is to what extent education is associated with, or indeed constitutes a cause of "rural exodus". Two aspects of this question may be pointed out here.

II. Distribution of educational facilities

It is plausible to assume that the distribution of educational facilities is a relevant factor in directing internal migratory movements. Judging from the empirical surveys done in connection with the family planning programmes of several Asian countries, the desire to provide adequate education to children figures quite prominently in the preference structures and actual decisions even of uneducated peasant families. Exactly to what extent school location and/or quality differences between rural and urban schools influence the decision to migrate towards the cities is, however, unknown. In fact, for many countries we have neither sufficient information as to where schools of different types are located, nor how significant the existing disparities in the quality of teaching and instructional facilities really are.[1] One relevant feature that seems to prevail in many Asian countries is the dearth of opportunities for secondary and higher education in rural areas. As the demand for such opportunities and insight into the value of schooling beyond the primary stage no longer remains a privilege of the urban educated elite, the actual school network in many countries is less and less geared to the distribution of its prospective clientele. Research is needed to assess the impact of such maldistribution of educational facilities on rural-urban migration in Asian countries.

III. The educational message – a motive for migration?

Another aspect needing closer study is the relationship between educational contents and ideologies and rural-urban migration. Critics of the conventional type of primary and secondary education argue that curricula are still focussed on values and learning needs of urban elites, ignoring the practical problems, needs, and constraints of the vast majority of people living in rural areas. Thus, it is argued, the rural youth is made strongly aware that his or her own environment offers but few opportunities to apply the knowledge, values and desires instilled by the school, and at the same time comes to see education mainly as a stepping-stone towards urban life. Irrelevance and urban value orientation of curricula combine with the non-terminal nature of the schooling

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1. See, however, the earlier contribution in this volume: Implementing Universal Primary Education within a Context of Rapid Population Growth: The Problem of Regional Disparities with Special Reference to Thailand, by Ta Ngoc Châu.

process: the primary school cycle, in most countries, is more conceived as an introduction into and preparation for secondary and higher learning than as a self-contained educational unit with a purpose and value of its own. Thus, the rural primary school leaver who wants to climb up to higher rungs of the educational ladder by moving to urban areas is only following the inherent logic of the present-day educational system. According to this critical view, therefore, education reinforces other motives inducing the rural youth to migrate to the cities, in search of the kind of jobs, further educational opportunities, and life-style which their own local environment seemingly does not offer.

Whether this view is justified, i.e. whether, in fact, education acts as a motive for migration, is not easy to decide in the absence of detailed motivational research amongst migrants. What we know more positively, though, is that it is typically the more educated rural youth who tend to migrate to the cities. The case-studies on education and rural-urban migration presented in this volume[1] offer some evidence to this effect, and studies undertaken in developing countries outside Asia reveal very much the same picture.[2].

The role of education in the process of rural-urban migration therefore deserves the strongest attention from educational and social planners concerned with the adverse effects of excessive migration on both educational and socio-economic development. The question has to be examined of whether the conventional type of education instilled in the rural youth does not run counter to the objective of regionally balanced educational and socio-economic progress in Asian countries. The International Commission on the Development of Education has stated the problem clearly enough: "In many societies, exodus begins at the village. Patterns of life are copied from the towns, the educational system is based on imported school models, and both show scant concern to help the individual integrate into his environment.. Schools thereby push young people out towards the towns, after having helped to turn them away from their own native springs of life. The effect of the educated person's climb to higher social and cultural levels is to turn him into a rootless creature, a potential expatriate, and the path which led him

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1. see p. 109.
2. see, for instance, Addo N.O.; Rural-Urban Migration in Africa and the Role of Education in the Process, in: Population, Education, Development in Africa South of the Sahara, Report of a Meeting of Experts, Unesco Reg. Office for Education in Africa, Dakar 1971.

from village to town, from town to capital city, tends in the end to take him overseas."[1]

To what extent these remarks are relevant to the educational situation in Asian countries, remains to be examined. It may, however, well be that a far-reaching reform of the objectives and contents of rural education will be required as the most urgent task of education in response to population dynamics.

IV. Educational problems of migrants in the cities

Our knowledge of what migrants achieve in the cities in terms of education, occupation, and upward social mobility is much too limited, considering that rural-urban migration, by its sheer size, has become a crucial aspect of population dynamics in Asian as well as other developing countries. The incomplete and sketchy evidence that is available for some countries would suggest that, in spite of their youthfulness, aspirations, and innovative momentum, migrants remain largely on the margin of urban society. They settle largely in urban slum areas, remain confined to low-level jobs with frequent intervals of unemployment, seem to gain little access to urban educational institutions, and stick to traditional behaviour and value patterns that entail, amongst other things, continued high fertility.

The quest of educational planners to improve education for particularly needy sub-groups of the population requires a close look at the special education and training needs of recent rural migrants in urban areas. What part does urban education play in further developing the basic education migrants have received in their village, in fulfilling their aspirations for higher educational opportunity, facilitating their assimilation into the urban world, and laying the ground for regular and meaningful employment?

It appears questionable, for instance, whether the performance standards, curriculum contents and value orientations of urban schools in Asian countries correspond sufficiently with the capacities, value orientations, and learning needs of rural in-migrants. Detailed examination would be needed of the question of whether rural in-migrants can economically afford to make use of existing facilities for education and training. Very often the costs of such institutions, however low they may be, are still prohibitive to the urban poor, and adequate schemes for financial subsidy do not exist. Also, the location of educational facilities within urban areas is often such as to prevent equal access to all sections of the urban population. In this connection, educational planners should examine in what instances education and training services have been tied up with urban slum improvement and resettlement programmes.

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[1] Learning to Be. Report of the International Commission on the Development of Education, Unesco 1972, p. 246.

On balance, it would appear that the type of education and training which young migrants require to move from unskilled, casual jobs to regular, skilled or semi-skilled employment is not sufficiently provided for in the big cities of developing nor, for that matter, more advanced countries. As long as educational and other conditions force migrants to remain on the margin of urban society, they are not likely to give up their rural patterns of high fertility, thus perpetuating the same process of population dynamics of which they themselves are a striking manifestation.

The outlook for special education and training programmed geared to their needs should be promising in view of the frequent observation that migrants tend to show, within their limited possibilities, commendable innovative momentum, high flexibility and openness to new ideas. It should also be remembered that the urban context offers rich educational environments which could be utilized to conduct non-formal programmes of relevant education and training for rural migrants at a relatively low cost. A variety of existing urban organizations, such as factories, government departments, students and trade unions, undoubtedly have an essential, though untapped, educational potential.

Clearly, there is a danger that improved educational opportunities for migrants in the cities may act as an additional stimulus for rural-urban migration, and thus actually compound rather than solve the problem. Therefore, whatever programmes be launched at the urban end of the rural-urban continuum, they will have to be preceded or accompanied by massive efforts to speed up educational progress in rural areas. The essential point, perhaps, is that relevant education directed towards migrant groups in cities may not only be effective in relation to their own outlook and reproductive behaviour, but in the feedback to the rural areas obtained when migrants visit their villages, providing for a reverse flow of experience, new values and ideas into the rural setting.

2. EDUCATION AND RURAL-URBAN MIGRATION: CASE STUDIES

Educational Implications of Rural-Urban Migration in India

I. Some research findings

Educational planning is affected by migration and a number of other demographic factors. For example, the size of the population for which an education plan is to be prepared is dependent upon fertility, mortality and migration. Not only the size, but even the age-structure of the population is dependent upon the levels of birth and death rates and the age-pattern and composition of the migratory flows. In turn, migration, like fertility and mortality, is influenced by the level of education of the population. There is a great deal of evidence to suggest that those with a higher educational level have lower fertility and lower mortality. There is also evidence to indicate that the more educated in the rural areas migrate to the urban areas in larger numbers.

Some demographers have tried to quantify the effect of educational levels on demographic factors. For example, Kiser has estimated that "educational level accounts for over half of the total variance in fertility between a large number of countries at various phases of demographic transition and four times more than all other factors included in the study taken together."[1] A comparison between different States of the United States of America has shown that "each additional dollar spent on education depresses mortality no less than the same dollar spent on health services."[2] No attempt appears to have been made to quantify the effect of educational level on migration.

Objections have been raised by several writers to this kind of quantification. First, it is maintained that education cannot be easily measured. Secondly, education is not an isolated process, it occurs within the framework of a social setting. Thirdly, the relationships between

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[1] Clyde V. Kiser, "Educational Differentials in Fertility in Relation to Demographic Transition", London: *Proceedings of the International Population Conference* (IUSSP) 1969, Vol. III, pp. 1926-1935.

[2] Quoted by H.V. Musham. See his article, "Education and Demography", London: *Proceedings of the International Population Conference* (IUSSP) 1969, Vol. III, pp. 1867.

education and fertility and mortality are neither direct nor inverse; they are as complicated as being U-shaped.[1] Finally, most of the effects of demographic variables on education are "spurious" because they are due to social and economic factors which are correlated with education rather than to education itself.[2]

II. Educational planning and rural-urban migration

Rural-urban migration affects educational planning in two ways. First, persons migrate to an urban area to take advantage of better educational facilities available there. This migratory movement depends upon the socio-economic conditions of the rural population and the availability of education facilities in the urban areas. People tend to migrate when they have economic resources to bear the cost of acquiring education and when the requisite education facilities are not available at the place of their rural residence. Secondly, educated persons from an economically depressed rural area may move to another place where better job opportunities exist. Such a migratory movement tends to leave the rural areas greatly depleted of talent and may further depress the already depressed villages. In some cases, however, an opposite trend may be observed. A rural area lacking in a particular kind of trained persons may attract persons with requisite training to take up the jobs. For example, doctors, nurses, school-teachers and others are often invited from outside to take up jobs in the rural areas. Such a migration is likely to prove helpful to the rural areas and may not be necessarily harmful to the urban areas, from where the migration has originated.

At the international level, the problem of "brain-drain" has been attracting considerable attention, since trained persons in the developing countries are migrating to the developed countries in search of jobs because of better pay-scales and more congenial living conditions, and are depleting the developing countries of highly skilled manpower. A similar phenomenon is observed in rural-urban migration within a country. Normally job opportunities in the rural areas are fewer and, therefore, persons with special skills and those with traditional educational qualifications move to the urban areas in search of jobs. This not only creates an immediate scarcity of technical and professional personnel in the rural areas, but also causes further deterioration of the intellectual climate of the rural areas. Rural areas start experiencing scarcity of qualified teachers, of physicians and of specialists in rural health services. This encourages further exodus of such persons from the rural areas. Daniel P. Price has examined the effect of the out-migration of non-white males from the southern parts of the United States and has concluded that there is "a high positive association between out-migration and the level of education, with the resultant lowering of the educational level of the residual population by approximately one-third of a school year."[1]

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[1] J. Bernard, "Education as a Demographic Variable", London, *Proceedings of the International Population Conference* (IUSSP) 1969, pp. 1876-1889.

[2] H.V. Musham, "Education and Demography", London: *Proceedings of the International Population Conference* (IUSSP) 1969, p. 1867-1875.

III. Object of the study

In this paper an attempt has been made to present data which will throw some light on the effect of rural-urban migration on educational planning. Efforts have been made to study, with the help of available data on rural-urban migration in Greater Bombay, whether those with better educational qualifications migrate to the urban areas, and if so, what kinds of educational problems does this create. Attempts have been made to indicate the kinds of changes which should be introduced in the traditional education system with a view to offsetting this migratory trend which is likely to aggravate the problem of regional imbalances. An attempt has also been made to study the educational, economic and social achievements of the immigrants in the first few years of their movement to the urban area, and suggestions have been made for improving the existing educational facilities in the urban areas. Lastly, fertility differences between the migrating and the non-migrating populations have been brought out and the effect of these differences on the growth of population have been studied.

It is unfortunate that there is a considerable dearth of scientific data on the level of education and the demographic characteristics of the rural-urban migrants and the non-migrants. Use, therefore, has been made of the relevant data available in the rural migration survey[2] carried out by the International Institute for Population Studies, and also of the special migration tables for the 1961 census available for Greater Bombay.[3] If additional information were available, the analysis could have been more in-depth.

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1. Daniel P. Price, "Effects of Out-migration on Educational Level of Negro Population in Southern United States", *Proceedings of the World Population Conference*, 1965, New York, United Nations, Vol. IV. 1967 p. 188.
2. V. Narain and others. *Rural Migration Patterns in Southern Maharashtra*, Bombay, International Institute for Population Studies, 1970. (Manuscript).
3. *Census of India*, 1961, Greater Bombay Special Migration Tables, Part X(1 - C); Census of India, 1961, General Economic Tables, Maharashtra, Part II-B (i).

IV. Educational characteristics of rural-urban migrants

A study of rural-urban migration carried out in the three districts of Maharashtra has brought out that "migration deprives the villagers of the more enterprising and better educated persons who go out and engage themselves in non-agricultural occupations"[1] (Table 1). Yet another study based on the 1961 Indian Census data and dealing with the educational characteristics of the in-migrants in Greater Bombay has found that, as a result of "migration, the out-migrating areas lose the better educated persons and the level of education in these areas declines."[2] Similar results are obtained when the level of education of the recently migrating workers into Greater Bombay is compared with the non-workers [3] (Table 2).

According to the 1961 Indian census, nearly 64 per cent of the population of Greater Bombay consisted of the migrants. Of those who migrated to Greater Bombay, 16.9 per cent came from Gujarat, 12 per cent from Uttar Pradesh, 41.6 per cent from Maharashtra other than Greater Bombay and the rest from other States. In-migrants to Greater Bombay from Maharashtra came mainly from the districts of Ratnagiri (44.5 per cent), Satara (12.7 per cent), Poona (10.6 per cent), Kolaba (9.8 per cent) and Thana (4.1 per cent). Further, out of the total in-migrants to Greater Bombay numbering 1.7 million, nearly 1.3 million (76.5 per cent) were workers and of these workers nearly 65 per cent had migrated from the rural areas.

Table 2 shows that the literacy level of the rural in-migrating workers was higher when compared with the literacy level of the non-migrating workers at the place of origin, that is, in the rural areas which the immigrants left to come to Bombay. This was also found to be true for the rural non-migrant workers of Maharashtra and of the five districts of Thana, Kolaba, Ratnagiri, Poona and Satara. A similar trend was found when the literacy level of the recent migrant workers was compared with that of non-migrant workers. This indicates that those with a higher literacy level in the rural population are motivated to move out of the rural areas, perhaps in search of better economic prospects.

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[1] The study was carried out by the International Institute for Population Studies in early 1966. It covered 15 villages randomly selected and belonging to three districts of Maharashtra State, namely, Kolhapur, Sangli and Sholapur. The object of the study was to find out the socio-economic and demographic characteristics of the in-migrants and the out-Migrants. See, Mrs. V. Narain and others. *Rural Migration Patterns in Southern Maharashtra, op.cit.*, 1970. Also see S.N. Agarwala, "Socio-Economic and Demographic Characteristics of the Rural Migrants and the Non-Migrants", Bombay: International Institute for Population Studies, 1969 (Mimeographed). It was found that the proportion of the matriculates and of those with higher education among the out-migrants was about 20 times higher than among the non-migrants.

[2] K.C. Zachariah, *Migrants in Greater Bombay*, Bombay: Asia Publishing House, 1969, p. 170.

[3] This table has been compiled with the helpof Special Migration Tables for Greater Bombay for 1961 and the General Economic Tables for Maharashtra for 1961. The educational levels of the rural migrant workers into Greater Bombay from five adjoining districts have been compared with those of the non-migrant workers into Greater Bombay.

Unfortunately information is not available regarding the employment of the in-migrants cross-classified with their educational classification and the duration since their migration, to enable us to find out the types of jobs which the in-migrants get and the time-lag before they get them. However, some intelligent guesses can be made. The illiterate rural workers who come to metropolitan towns in search of jobs face stiff competition from the local people and get jobs after considerable a time-lag and often at lower wages. Similar is the fate of those who in-migrate with conventional educational qualifications. But those who have sophisticated skills and specialised training get jobs with greater facility because of lack of local competition.

From the point of view of educational planning, it is desirable that educational facilities are created in the rural areas to train workers in suitable skills which can be acquired in brief periods and which will enable them to work at their homes in household industries or in their villages in agro-industries. It is also appropriate to discourage the rural people from obtaining conventional education because after acquiring such an education they lose interest in farming and are unable to get suitable jobs in the urban areas. This breeds frustration and swells the number of educated unemployed in the country.

V. Literacy levels of migrants by duration of residence

Tables 3 and 4 which compare the literacy levels of the rural in-migrants into Greater Bombay by the duration of their residence bring out that the level of literacy of the in-migrants improves as the length of their stay increases. This is generally true except for the migrants coming from the districts of Poona and Satara. This indicates that the rural in-migrants do endeavour to acquire literacy or special skills when they migrate to urban areas. Zachariah has come to a similar conclusion on the basis of the 1961 census data for Greater Bombay. He found that "the longer the duration of residence of a migrant, the higher is his educational attainment." [1] Still, the educational level of the migrants continues to be lower than that of the non-migrants and thus the migrants tend to depress the over-all educational level of the metropolis.

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[1] K.C. Zachariah, *op.cit.*, p. 181.

It has been observed by Gore that even though a large percentage of the rural migrants earn less than the non-migrants, still they feel satisfied that their economic condition is a little better than in the rural areas. Gore found out that 76 per cent of the blue-collar and 85 per cent of the white-collar in-migrant workers were satisfied with their economic conditions.[1]

However, with growing unemployment and the propagation of the 'son of the soil' theory, the possibility of the rural in-migrants getting non-specialised and unskilled jobs in the urban areas is likely to become smaller.

The rural migration pattern study has shown that while 54 per cent males and 20.5 per cent females were engaged in gainful activity at the time of migration, the percentage increased to 78 for males and to 46 for females after their out-migration and at the time of enumeration. Only a small proportion of the male migrants (18.3 per cent) remained engaged in agricultural occupations and a large number of them were employed as craftsman (30 per cent), in service (19 per cent) and in clerical jobs.[2] A similar trend was noticed among the recent migrants. Of the 459 male migrants who were unemployed at the time of migration, only 184 remained unemployed at the time of enumeration. They were mostly employed as white-collar workers. Among the female migrants, however, there was no marked change in the occupational pattern, and although the percentage of workers among them increased, 94 per cent of them remained engaged in agriculture. This was mainly because the females mostly migrated to neighbouring rural areas, and not to urban areas.

It may be pointed out that the percentage of the unemployed males was high at the time of migration partly because of the younger age of the migrants. A significant proportion of them were below the working age. No hasty conclusions should, therefore, be drawn from the above data, regarding the employment of the migrants.

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1. M.S. Gore, *In-migrants and Neighbourhoods - Two Aspects of life in A Metropolitan City.* Bombay, Tata Institute of Social Sciences, 1970, p. 69. Professor Gore carried out a survey in Greater Bombay in 1969 with a view to finding out about the process of settling down and of adjustment of the in-migrants in Greater Bombay.
2. V. Narain, *Rural Migration Patterns in Southern Maharashtra, op. cit.* p. 128, The number of cases, however, is too small to permit any useful analysis of shifts in occupation after migration.

Detailed information is not available to indicate the kinds of skills or the type of education which the rural in-migrants acquire after their migration, or for that matter, the kinds of jobs which they do after their migration and the time-lag before they acquire urban jobs. Information on these items is sorely needed and should be collected through carefully planned migration studies. It is also hoped that the 1971 Indian Census data, which will be tabulated by duration of migration, may provide useful information for such an analysis.

It appears that it is necessary to institute special educational programmes in the urban areas to suit the needs of the in-migrants and to meet the pressure exercised by them on the existing facilities. The migrants compete with the residents to seek entry into schools, colleges and in training institutions. However, with the growing tendency to fix residential qualifications in institutions of higher learning like medical and engineering colleges, the migrants find it difficult to get admission to specialised institutions. It is easier for them to gain admission into schools and colleges which provide traditional education. But such an education does not prove much help to them. Special educational facilities for providing training in secretarial work and in special skills which can be acquired in short periods should be established in the urban areas to help the rural migrants to find jobs after a minimum time-lag.

VI. Rural-urban migration and fertility

A study relating to fertility in Greater Bombay has revealed that the rural migrants have significantly higher fertility than the non-migrants for the same educational level [1] (Table 6). It was found that while the illiterate non-migrants aged 40 and above had an average of 4.6 children, the rural migrants had 5.1 children. The authors found that the most significant reason for differences in the fertility of the migrants and the non-migrants was the level of education of the wives. When the average number of children born per female was standardised for age and education, it was found that while the non-migrants had an average of 3.06 children, the rural-urban migrants had 3.12 children. It was also found that the fertility of the urban-urban migrants was lower (average 2.9 children) than of the non-migrants (average 3.0 children).

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[1] See, J.R. Rele and Tara Kanitkar, "Residence Background and Fertility in Greater Bombay", Bombay International Institute for Population Studies, 1971. p. 10-11 (Manuscript). The study was carried out by the International Institute for Population Studies, Bombay, during 1966. Information on fertility as well as on knowledge, attitude and practice of family planning was collected from a representative sample of 7872 currently married females of Greater Bombay.

The results of the above study are in line with the findings of Ritchey and Stokes who have based their conclusions on the data obtained from the National Survey of Economic Opportunity (SEO) conducted by the Bureau of the Census for the Office of the Economic Opportunity of the United States of America in 1967. In an excellent paper they have studied residence-background and migration as independent variables and have come to the conclusion that both have independent effects. They found that while the average number of children born to the rural migrants was 2.56, it was 2.47 for the urban migrants and 2.5 for the urban non-migrants.[1]

The higher fertility of rural migrants with the level of education is chiefly attributable to the fact that, while migrating to the urban areas, they bring with them the higher fertility values and behaviour. But when they continue to live in the urban areas, they get integrated into an urban environment and this leads to homogenization. Because of these processes, it is surmised that the fertility of the migrants in the second generation tends to come closer to the urban "ideal".[2]

VII. Rural-urban migration and population growth

If rural out-migration is promoted as a population policy with a view to reducing the pressure of population as well as the subsequent birth rate, then it may be desirable to distinguish between the initial and the longer period effects. It will also be appropriate to separate out the effect of age and sex-selective migration on birth rate.

It is possible that rural-urban migration tends to reduce the pressure of population. However, in the initial period the effect of the age and sex-selective migration on birth rate is not much different. In other words, whether the out-migrants are aged 8 or 80, the effect on the total size of the population would be the same. But in the longer run, the age selectivity of the migrants has a considerable influence on the birth rate, and through it on the size of the population. For example, if the migrants largely belong to the reproductive ages, the birth rate of the rural area will tend to decline in the long run. This is on the assumption that out-migrants have higher, or at least, similar fertility to the rural non-migrants. Further, if a large number of males have already left the villages, then persuading some women to leave will not greatly reduce subsequent births because the husbands of these women would have been scarce had they (the women) stayed.[1]

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[1] P. Neal Ritchey and C. Shannon Stokes, "Residence, Background, Migration and Fertility". *Demography*, Vol. 9, No. 2, May 1972. p. 217-230. It may, however, be pointed out that Goldberg, using the data of the Indianapolis Study, found that the fertility of the urban and the rural populations was the same (David Goldberg, "Another look at Indianapolis Fertility Data"; *Milbank Memorial Fund Quarterly*. Vol. 28, 1960. p. 23-36). Similar is the view of Clyde Kiser (Clyde Kiser, "Birth Rate Among Rural Migrants in Cities". *Milbank Memorial Fund Quarterly*, Vol. 16, 1930. p. 369-381). But Macisco has reported that the migrants from non-metropolitan to the metropolitan areas of San Juan, Puerto Rico, had a slightly lower fertility than the metropolitan non-migrants (Macisco, J.J., L.F. Bonvier and R.H. Weller, "The Effect of Labour Force Participation on the Relation between Migration Status and Fertility in San Juan, Puerto Rico"; *Milbank Memorial Fund Quarterly*, Vol. 48, 1970. p. 51-70).

[2] S. Iutaka, S.W. Bock and W.G. Varnes, "Factors Affecting Fertility of Natives and Migrants in Urban Brazil", *Population Studies*, Vol 25, Part I, 1971, p. 55-62.

The rural migrants have a higher fertility than the urban non-migrants. Therefore, other things remaining the same, rural-urban migration tends to push up the birth rate of the urban areas. This is on the assumption of normal sex distribution of the urban population. However, when the rural migrants get assimilated with the urban population, the birth rates of the two groups may tend to become equal.

VIII. Summary

It is found that the more educated and the more skilled in the rural areas migrate to urban areas. This tends to depress the rural areas still further, and a problem similar to that of "brain-drain" is created. Also, the problem of "regional imbalance" is aggravated. It is suggested that special educational programmes which will train the rural residents in the household and agro-industries should be established in the rural areas so that rural talents are harnessed for the development of that area.

The rural migrants endeavour to improve their educational qualifications after migrating to the urban areas. Most of them get employed and their economic condition also improves. Unfortunately, detailed information regarding the types of jobs which the rural migrants get in the urban areas, cross-classified by their educational qualifications and the duration of their urban stay is not available to permit an analysis in depth. It will be desirable to collect this information through carefully conducted migration studies. It will also be desirable to set up special training programmes geared to the needs of rural migrants to enable the migrants to acquire special skills which would improve their chances of employment.

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1. Nathan Keyfitz, "Migration as a Means of Population Control", *Population Studies*, Vol. 24, Part I, p. 63-72.

The rural migrants have a lower fertility than that of the rural non-migrants. But their fertility is higher as compared with the fertility of the urban non-migrants. Thus rural-urban migration tends to increase the overall urban fertility initially. But this effect is eliminated when the migrants are assimilated with the urban population and acquire similar norms and values.

Rural-urban migration tends to depress the population growth of the rural areas. In the short-term the age and sex-selective rural-urban migration has no special significance. But in the longer term, it acquires special significance because of its effect on birth rate.

There is considerable scarcity of data to study the effect of rural-urban migration by educational level. It appears necessary to conduct special surveys to obtain detailed information on various demographic and socio-economic aspects of rural-urban migration.

Table 1. Educational level of the out-migrants and non-migrants aged five years and above, by sex (in per cent)

Educational category	Out-migrants		Non-migrants	
	Male	Female	Male	Female
1. Illiterate	44.5	91.0	61.5	86.1
2. Literate without schooling	8.0	2.2	17.6	9.4
3. Primary	33.6	6.2	20.2	4.4
4. Matriculate	11.5	0.4	0.6	0.1
5. Diploma and Degree	2.4	0.2	0.1	-
Total persons	951 (100.0)	2,734 (100.0)	6,942 (100.0)	3,704 (100.0)

Source: S.N. Agarwala, "Socio-Economic and Demographic Characteristics of the Rural Migrants and the Non-Migrants", International Institute for Population Studies, Bombay, p. 13.

Table 2. Literacy levels of rural non-migrant workers (at place of origin), rural in-migrant workers (into Greater Bombay), and of recent rural in-migrant workers (within one year), 1961

Places of origin of in-migrants into Greater Bombay	Rural non-migrant workers	Migrant workers in Bombay	Recent migrant workers in Bombay
(1)	(2)	(3)	(4)
		I. Illiterate	
All States and Union Territories*	62.8	37.4	50.6
Maharashtra	53.3	37.0	46.4
Thana District	64.2	31.7	36.0
Kolaba "	61.6	37.7	41.4
Ratnagiri "	55.2	34.7	62.4
Poona "	60.7	50.0	37.7
Satara "	48.4	39.9	22.0
Other Districts of Maharashtra	63.8	34.2	42.1
		II. Just Literate but without Educational Level	
All States and Union Territories*	23.3	27.9	21.9
Maharashtra	20.6	27.8	21.9
Thana District	19.6	20.3	21.1
Kolaba "	22.3	29.2	30.4
Ratnagiri "	20.7	28.4	15.2
Poona "	21.3	24.2	25.9
Satara "	27.1	28.6	30.2
Other Districts of Maharashtra	19.1	27.3	22.6
		III. Primary or Junior or Basic Educational Level	
All States and Union Territories*	10.0	25.1	18.7
Maharashtra	21.2	27.7	24.7
Thana District	14.7	28.3	29.1
Kolaba "	15.2	23.9	23.0
Ratnagiri "	22.9	29.9	17.2
Poona "	16.9	21.5	30.7
Satara "	23.0	27.4	41.5
Other Districts of Maharashtra	16.2	26.7	24.0
		IV. Matriculate and Above	
All States and Union Territories*	3.8	9.6	8.9
Maharashtra	4.9	7.5	7.0
Thana District	1.4	19.8	13.8
Kolaba "	0.9	9.2	5.1
Ratnagiri "	1.2	7.1	5.2
Poona "	1.1	4.3	5.7
Satara "	1.6	4.0	6.2
Other Districts of Maharashtra	0.9	11.8	11.2

Sources: Computed from: (a) *Census of India*, 1961, General Economic Tables, Part II-B(i), pp. 260-61 & 266-67.
(b) *Census of India*, 1961, General Economic Tables — Maharashtra, Part II-B(i), pp. 128-60.
(c) *Census of India*, 1961, Greater Bombay Special Migration Tables, Part X(1-C), pp. 264-309.

Note: * The figures for rural migrants from Goa, Daman and Diu are not included in this category.

Table 3. Literacy levels of in-migrant workers into Greater Bombay, cross-classified by duration of residence, 1961

Places of origin of in-migrants into Greater Bombay	Duration of residence			
	Less than 1 year	Between 1 to 4 years	Between 5 to 14 years	15 Years and above
(1)	(2)	(3)	(4)	(5)
	I. Illiterate			
All States and Union Territories*	50.6	38.8	36.0	36.0
Maharashtra	46.4	34.9	34.9	38.4
Thana District	36.0	22.6	22.4	37.3
Kolaba "	41.4	36.3	39.3	36.8
Ratnagiri "	63.4	29.6	31.0	37.2
Poona "	37.7	53.7	50.3	49.2
Satara "	22.0	41.8	36.1	44.2
Other Districts of Maharashtra	42.1	30.7	36.8	32.9
	II. Just Literate but without Educational Level			
All States and Union Territories*	21.9	27.2	28.8	28.3
Maharashtra	21.9	29.6	29.1	26.8
Thana District	21.1	19.3	20.7	20.3
Kolaba "	30.4	33.3	30.6	27.2
Ratnagiri "	15.2	33.0	30.5	26.3
Poona "	25.9	22.1	24.0	25.2
Satara "	30.2	25.8	29.8	28.8
Other Districts of Maharashtra	22.6	28.2	23.5	28.7
	III. Primary or Junior or Basic Education Level			
All States and Union Territories*	18.7	23.7	26.0	25.9
Maharashtra	24.7	29.2	29.1	26.4
Thana District	29.1	34.3	32.7	24.7
Kolaba "	23.0	24.0	22.5	24.4
Ratnagiri "	17.2	32.4	32.6	28.0
Poona "	30.7	20.6	21.6	21.1
Satara "	41.5	28.6	29.8	23.2
Other Districts of Maharashtra	24.0	28.6	23.4	28.4
	IV. Matriculates and Above			
All States and Union Territories	8.9	10.2	9.2	9.8
Maharashtra	7.0	6.2	6.9	8.3
Thana District	13.8	23.9	24.2	17.7
Kolaba "	5.1	6.3	7.5	11.6
Ratnagiri "	5.2	5.0	5.9	8.5
Poona "	5.7	3.6	4.1	4.5
Satara "	6.2	3.8	4.3	3.7
Other Districts of Maharashtra	11.2	12.5	14.2	10.0

Source: Census of India, 1961, Greater Bombay Special Migration Tables, Part X (1-C), pp. 264-309.

Note: *The figures for rural migrants from Gao, Daman and Diu are not included in this category.

Table 4. Index of educational attainment* for rural migrant workers, cross-classified by duration of residence in Greater Bombay, 1961

Rural migrant workers from	Duration of residence			
	Less than 1 year	Between 1 to 4 years	Between 5 to 14 years	15 Years and above
All States and Union Territories**	2.8	3.4	3.5	3.5
Maharashtra	3.0	3.4	3.4	3.4
Thana District	4.1	5.7	5.7	4.2
Kolaba "	2.8	3.1	3.1	3.7
Ratnagiri "	2.1	3.5	3.6	3.5
Poona "	3.3	2.3	2.5	2.5
Satara "	4.2	3.0	3.2	2.6
Other Districts of Maharashtra	3.6	4.1	3.8	3.8

Source: Census of India, 1961, Greater Bombay Special Migration Tables, Part X (1-C), pp. 264-309.

Notes: * The index of educational attainment roughly measures the average number of years of schooling. It is obtained by assuming 0 year of schooling for the illiterates, 2 for literates, 7 for primary and junior basic, 11 for matriculates, 12 for diploma holders and 15 for degree holders. The index has been used in K.C. Zachariah's *Migrants in Greater Bombay*, Bombay: Asia Publishing House, 1966, pp. 163-168.

** The figures for Goa, Daman and Diu are not included in this category.

Table 5. Percentage distribution of workers by occupation before and after migration

Occupational division	Male		Female	
	Before	After	Before	After
1. Professional	1.5 (8)	6.9 (51)	0.2 (1)	0.6 (8)
2. Administrative	0.2 (1)	0.3 (2)	—	0.2 (2)
3. Clerical	0.2 (1)	4.4 (32)	—	0.3 (4)
4. Sales	0.4 (2)	2.9 (21)	0.2 (1)	0.3 (4)
5. Agriculture	81.9 (433)	18.3 (135)	95.2 (535)	93.7 (1177)
6. Transport	1.1 (6)	7.3 (55)	—	—
7. Craftsmen and Production Process Workers	12.5 (66)	40.4 (297)	4.3 (24)	4.5 (56)
8. Service	2.2 (12)	19.4 (143)	0.2 (1)	0.3 (4)
Total	100	100	100	100
Total Workers	(529)	(736)	(562)	(1235)
Non-Workers	(459)	(207)	(2185)	(1472)
Not Available	(34)	(79)	(38)	(58)
Grand Total	1022		2785	

Source: Mrs. V. Narain and others. ***Rural Migration Pattern in Southern Maharashtra***, Bombay, International Institute for Population Studies, Bombay, 1966, p. 101 (Manuscript).

Note: Figures in parentheses indicate the number of cases.

Table 6. Average number of children ever-born per wife by her present age, residential background and educational attainment

Age group	Non-migrants			Rural migrants		
	Illiterate and literate without formal education	Primary or Junior Basic Passed	Matric. Passed and above	Illiterate and literate without formal education	Primary or Junior Basic Passed	Matric. Passed and above
Below 20	0.62	0.48	0.28*	0.51	0.31	**
20-24	1.37	1.27	0.89	1.70	1.22	0.82
25-29	2.92	2.75	1.37	2.88	2.50	1.80
30-34	4.02	3.68	1.80	3.83	3.69	2.58
35-39	4.87	4.32	1.82	4.46	3.99	3.31*
40+	4.62	4.10	2.80	5.08	4.69	2.94

Source: J.R. Rele and Tara Kanitkar; Residence Background and Fertility in Greater Bombay, International Institute for Population Studies, Bombay, 1973, p. 11.

Notes: * Averages are based on a small number of cases (below 20)
** There were no women in this cell

Cityward Migration and Educational Attainment in Jakarta, Indonesia

I. Introduction

Studies of the spatial redistribution of population have attracted much attention although the movement within national boundaries, especially rural — urban migration, did not receive attention as early as international migration. Of all the components of population change, migration has been the most difficult to measure and least effort has been made to improve methods in this direction. This is due to the fact that, in the process of migration, movers are not representative of the population and, therefore, the composition by sex, age, ethnic groups, or socio-economic characteristics of the population either in the area of origin or destination differs from that of migrants. Measuring the causes of movement produces many difficulties, too, since migration seems to be related to a variety of factors, such as education facilities and planning, labour force, social conflict, social disorganization, acculturation, and so on.

Because of its close relationship with social status or economic productivity, education has become a more and more important factor in the migration process. In addition, education may also be an intervening variable to fertility or mortality differentials. Consequently, education has become one of the most studied differentials in migration.

II. Cityward migration and the growth of cities

Generally, cities grow in three ways: first, through expansion of city boundaries; second, through changes in the definition of urban and rural areas; and third, because increasing numbers of people live in the cities. It is generally agreed, however, that the growth of cities depends largely upon the third of these factors. In practice, a city's population increases in two ways: Firstly, due to natural increase, i.e., the excess of births over deaths; and secondly, due to in-migration.

Even though many cities in the developing countries today face complex socio-economic problems due to their rapid rate of cityward migration, migration is often regarded as an indicator of social and

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economic development.[1] There are two reasons for this: First, urbanization reflects the changes occurring in every sphere of social life. City growth stems from all the factors that change illiterate agriculturalism to literate industrialism. It is correlated with increased industry and commerce, enhanced education, more efficient birth and death control, etc. Second, the city is a source of change in its own right. It forms the diffusion center for modern civilization, providing a milieu in which social fermentation and innovation can take place. City expansion therefore helps to determine, as well as reflect, the trend towards more modern conditions.

III. Factors associated with cityward migration in Indonesia

Indonesia, as many other developing countries today, is characterized by a high rate of population growth due to a sharp decline in mortality, whereas fertility remains more or less stable. The estimated birth rate in Indonesia today is around 40 to 45 per 1,000 population, whereas mortality is about 15 to 22 per thousand population yearly.[2] In some rural areas outside Java, the birth rate is still as high as 50 per thousand population, whereas in Java itself it is as low as 22 per thousand. Consequently, the rate of natural increase is higher in islands outside Java and it also varies from island to island. But in general, rural areas have higher rates of growth than their urban counterparts.

Indonesia's population census of 1971 recorded that in the decade 1961-1971 the natural rate of increase was about 2.1 per cent per year. This rate is quite low when compared with other developing countries, such as Philippines (3.4 per cent), Thailand (3.3 per cent), Pakistan (3.3 per cent), Iraq (3.4 per cent), Algeria (3.3 per cent), and Morocco (3.3 per cent).[3] However, even with the present rate of growth of only 2.1 per cent per year, Indonesia's population will double in less than 35 years. Thus, if in 1971 Indonesia had a population of 118 million, it will not be less than 200 million by the end of the twentieth century, if the present rate of growth is maintained. Such high rates of growth had in fact been experienced by many countries in Western Europe, North

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1. Kingsley Davis and Hilda Hertz Goldenn, "Urbanization and the Development of Pre-Industrial Areas", *Cities and Society*, New York, Free Press, Glencoe, 1961, p. 120-140

2. N. Iskandar, "Some Compositional Differences Between the Urban and Rural Population in Indonesia around 1960". In *Ekonomi dan Keuangan* Indonesia, (Jakarta), Vol. XIVIII. No. 1. 1970, p. 4.

3. Population Reference Bureau Inc., *1971 World Population Data Sheet*, Washington D.C., 1971.

America, and even Japan during the early period of their industrialization. In those countries, however, a fast increase of population arose from changes in the social and economic structure. The Industrial Revolution led to growing urbanization and drew an ever-increasing proportion of the people into non-agricultural pursuits.

In contrast, the rapid rate of population growth in Indonesia is not accompanied by such changes. Instead, a great mass of the people remain dependent upon agriculture. Consequently, the rapid growth of population has resulted in rural over-population, which has led in turn to a diminution of land ownership, to an increasing number of landless farmers, to an incipient decline in productivity, to the formation of a class of agricultural labourers and to an increase of poverty, malnutrition and food shortage.

In such a situation, any social organization adjusts itself to the growing numbers, but the social gap between the rich and the poor is widening, employment opportunities get fewer. A new pattern of client-patron relationships is emerging, and people come to be paid less for their labour. In time the mode of production becomes more labour-intensive, the number of work animals used declines and they are replaced by people in production. This can even lead to what Geertz has called agricultural involution, a situation characterised by an over-elaboration of labour-intensive methods.[1]

The following are some examples to illustrate the effect of rapid population growth in some rural areas in Java:

a) The man-land ratios in some rural areas in Central Java, such as Adiwerno village in Tegal, Punung in Pacitan, and several rural areas in Yogyakarta are very high. Average population density in those areas is over 1,000 per square kilometer.

b) The average size of land holdings in many parts of rural areas in Central and East Java is about 0.3 hectar per family, whereas the ideal size of agricultural land is about 0.75 hectar per family.

c) The average daily salary of a worker in some rural areas in Central Java is around Rp. 75 equivalent to 0.18 cents (U.S.). Female workers, on the other hand, receive daily salaries of only Rp. 35 to Rp. 45 equivalent to about 10 cents (U.S.).[1]

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[1] Clifford Geertz, *Agricultural Involution: the Processes of Ecological Change in Indonesia*, Berkeley, University of California Press, 1963.

d) Central and East Java have a typical monsoon climate where the rainy season lasts for six months, and the other six months are dry. During dry months, especially August, September, and October, even grass is rarely found in some rural areas in Central and East Java, and in the eastern part of West Java.

The physical and social conditions that have been described above seem to be the major reason why people are leaving the countryside and trying their luck in the neighbouring or other big cities. As a result, cities like Jakarta, Bandung, Surabaya, Medan, Tanjung Karang/Teluk Betung, Pematang Siantar, and Ujung Pandang have population figures of seven to nine times their size thirty years ago. For example, Jakarta's population in 1930 was only 533 thousand, but in 1971 its population was recorded at 4.6 million persons. Medan's population was only 76,600 persons in 1930, and it had a more than eightfold increase (535,300) by 1971. In short, if in 1930 there were only 7 cities with populations of 100,000 or more, their number grew to 22 cities in 1961, and ten years later the number of cities with a population of 100,000 or more in Indonesia had increased to 27.

IV. Migration into Jakarta

Migration into Jakarta has long been apparent, but the first great influx of in-migration occurred during the period 1948-1950, i.e. after the harsh period of revolution and struggle for independence. Within these two years the population of Jakarta increased from 823,356 to 1,432,085 persons — an increase of well over half a million or about 70 per cent in just two years. Eleven years later, when the first national population census was taken, the population of Jakarta stood at 2,906, 533 persons. In 1971, the population of Jakarta had reached 4,576,000 persons. It has been calculated that the rate of in-migration during the period 1950-1970 was around 4 per cent per year.[2]

The following statistics can be used to illustrate the heavy stream of in-migration into Jakarta. From January to December 1970, Jakarta Municipal Office registered 236,826 persons as in-migrants. If this number is divided by 360, it will give an average of 658 persons every day who came to live in Jakarta.

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[1] Suharso, Persoalan Penduduk dan Pembangunan Masyarakat Desa: Sebuah Case Study di Desa Jeruk Sawit - Jawa Tengah (Population Problems and Rural Community Development : A Case Study in the Village of Jeruk Sawit - Central Java), LEKNAS, 1971

[2] Suharso, "Socio-Environmental Aspects of Rapid Urbanization in Indonesia with Special Reference to Jakarta", *Indonesian Magazine*, No. 17, 1973.

Table 1. In-migration into Jakarta by last place of residence and place of birth, 1971.

No.	Province	Last place of residence		Place of birth	
		Number	%	Number	%
1.	Aceh	9,518	0.50	10,014	0.54
2.	Bali	5,133	0.27	3,963	0.23
3.	Bengkulu	4,773	0.26	4,732	0.28
4.	Irian Jaya	3,963	0.20	1,544	0.11
5.	Jakarta (DKI Jakarta)	—	—	25,245	1.36
6.	Jambi	7,594	0.40	4,355	0.26
7.	Central Java	487,657	25.71	504,187	26.61
8.	East Java	127,112	6.70	121,769	6.45
9.	West Java	816,400	43.04	782,380	41.31
10.	Central Kalimantan	1,492	0.07	1,062	0.08
11.	East Kalimantan	5,757	0.30	4,463	0.26
12.	South Kalimantan	9,116	0.48	8,397	0.50
13.	West Kalimantan	23,789	1.25	22,067	1.19
14.	Lampung	12,557	0.66	8,787	0.53
15.	Maluku	9,499	0.50	9,291	0.56
16.	East Nusa Tenggara	5,696	0.31	5,973	0.39
17.	West Nusa Tenggara	23,789	1.25	2,853	0.23
18.	Riau	14,584	0.76	9,298	0.57
19.	Central Sulawesi	4,474	0.23	4,351	0.30
20.	North Sulawesi	16,962	0.89	19,316	1.09
21.	South Sulawesi	32,935	1.73	30,545	1.69
22.	Southeast Sulawesi	2,843	0.14	3,233	0.24
23.	North Sumatera	65,484	3.45	65,510	3.53
24.	South Sumatera	57,700	3.04	48,758	2.65
25.	West Sumatera	72,873	3.85	82,955	4.45
26.	Yogyakarta	65,264	3.44	60,435	3.31
27.	Abroad	29,919	1.57	22,972	1.28
	Total	1,896,703	100.00	1,896,703	100.00

Source: Population Census 1971, Central Bureau of Statistics (Computation of 10% sample).

With regard to the area where the migrants came from, it is found that West Java, Central Java, and East Java are the three leading sources of in-migration, while West and North Sumatera are two major sources of long distance migration, followed by South Sumatera, South Sulawesi, and West Kalimantan (see Table 1).

V. Reasons for migration into Jakarta

While migration may result from factors associated with either the area of origin, or the area of destination, or from a comparison of factors at the area of origin and destination, "children carried by their parents" seems to be the major component of in-migrants into Jakarta (32.81 per cent), followed by those who are "seeking a job" as the second (29.60 per cent), and "wives accompanying their husbands" as the third (16.45 per cent).

Table 2. Reasons for in-migration into Jakarta (in per cent)

Transfer of work	4.05
Seeking job	29.60
Study	5.74
Follow parents	32.81
Follow husbands/wives	16.45
Others	9.95
Unknown	1.39
Total	100.00

Source: Preliminary figures, Population Studies Center - LEKNAS

The statistical figures above are preliminary findings of a study on "Some Aspects of Urbanization in Jakarta" carried out by the Population Studies Centre of the National Institute of Economic and Social Research, in 1971. The study interviewed and analyzed about 15,000 respondents who were found in 3,000 households in Jakarta in 1971. Unfortunately, the study did not include the people who are homeless, nor seasonal migration which can undoubtedly be used to illuminate the strong importance of the "push factors" which produce the problem of under-and unemployment that has come to characterize the village economy and is spreading to the urban centers.

VI. Level of education of migrants

Level of education is defined as the highest certificate or diploma achieved from formal schooling. By this definition, one in every four migrants in Jakarta has never been at school at all (25 per cent); almost every other migrant has had some Grammar School (47.95 per cent); one in eight has accomplished Junior High School diploma (12.5 per cent), one in nine has High School diploma (11.07 per cent), and almost one in twenty five migrants has an Academy or University diploma (3.48 per cent).

Table 3. In-migrants to Jakarta by level of education, and province (in percent)

Province of origin	No schooling	Grammar School	Junior High School	Senior High School	Academy/ University
1. Aceh	13.63	41.33	18.78	20.93	5.32
2. Bali	12.91	35.60	15.74	4.83	10.92
3. Bengkulu	15.27	43.61	18.00	18.34	4.78
4. Irian Jaya	100.00	-	-	-	-
5. Jakarta (DKI)	-	-	-	-	-
6. Jambi	11.88	47.53	18.69	17.18	4.68
7. Central Java	13.29	41.60	18.67	18.12	8.32
8. East Java	10.93	36.88	19.13	27.61	4.43
9. West Java	32.77	49.95	13.45	10.09	2.75
10. Central Kalimantan	12.13	40.72	16.85	22.24	8.07
11. East Kalimantan	4.89	36.33	27.65	24.49	6.64
12. South Kalimantan	14.78	44.07	20.97	14.89	5.30
13. West Kalimantan	10.25	44.04	16.48	22.19	7.04
14. Lampung	34.54	50.82	7.26	5.67	1.71
15. Maluku	12.82	42.34	20.16	16.90	7.77
16. East Nusa Tenggara	16.58	53.79	16.25	10.57	2.81
17. West Nusa Tenggara	8.97	46.54	18.06	17.87	8.55
18. Riau	21.61	44.01	13.21	15.49	5.69
19. Central Sulawesi	15.76	43.38	18.34	16.56	5.96
20. North Sulawesi	24.90	42.53	11.75	17.21	5.59
21. South Sulawesi	4.99	47.03	21.99	20.62	5.38
22. Southeast Sulawesi	8.18	42.85	20.22	21.53	7.21
23. North Sumatera	7.53	33.15	22.57	29.64	6.18
24. South Sumatera	12.09	50.50	15.96	23.66	7.80
25. West Sumatera	12.25	42.68	19.12	31.77	4.19
26. Yogyakarta	15.78	43.31	17.85	17.06	6.00
Total	25.00	47.95	12.50	11.07	3.48

Source: 10% sample tabulation of 1971 population census, Central Bureau of Statistics.

Note: Figures of Grammar School include Grammar School drop-outs.

Examining the cross tabulation of educational attainment and area of origin presented in Table 3 above, it is found that more than 65 per cent of the migrants who came from Irian Jaya, Lampung, West Java, East Nusa Tenggara, North Sulawesi, and Riau, have an educational background of only Grammar School or even less. In contrast, about one third of the migrants who came from West Sumatera, North Sumatera, East Java, Central Kalimantan, and East Kalimantan, have High School diplomas or higher.

VII. Conclusion

Short distance movement and especially cityward migration seems to be the dominant type of population movement in Indonesia after the Second World War. Unlike the urbanization process which took place in many Western European countries and North America, where cityward movement was stimulated by the opening and expansion of employment opportunities in the cities, rural-urban migration in Indonesia is not accompanied by such opportunities.

The explanation of rural-urban movement in Indonesia has to be sought not in the city, but rather in the physical and social conditions of rural areas as a "push factor", and should not be separated from the high rate of population growth for the country as a whole.

Cityward migration of this sort will create social and economic difficulties in the city and also exert growing pressure on the existing inadequate urban facilities.

Because in Indonesia "push" factors related to the country-side appear stronger than "pull" factors related to the city, selectivity of migration by education, in the sense that people who have higher education are more likely to move, with long-distance migration being particularly dominated by people having higher education, cannot be observed in Indonesia.

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Recent Trends and Implications of Rural - Urban Migration in Japan

I. Significance of rural-urban migration in pre-war Japan

Regional shifts in population, from rural to urban areas in Japan, have led to a basic and incessant stream of people since the last decade of the nineteenth century when the industrial revolution began in Japan. It must, however, be noted that the rural-urban migrations before and after World War II are very different, both in their volume and in their implications, because a remarkable change in economic and social situations occurred between pre-war and post-war times in Japan.

The basic process of migration in pre-war times was that excess population prevailing in rural areas had always been pushed out and absorbed into the industrial sectors in urban districts. This resulted in a steady progress of urbanization. However, it should be stressed that these changes had several significant aspects peculiar to the pre-war society in Japan.

First, in spite of the progress of urbanization, the agricultural labour force remained at the almost constant level of 14 million for about 70 years, from the 1870's in the early stage of the Meiji Restoration to 1940 in the early war period. This could be attributed to the fact that, on the one hand, fertility levels in pre-war times remained at the high standard typical of pre-industrial societies and that, on the other, demand for labour in urban industries was not so large as to reduce the agricultural population.

Secondly, rural people who were employed in urban factories and services, especially young girls engaged in the light industries like silk and cotton manufacturing, sent most of their wages to parents who expected an extra income to supplement their poverty, and besides they themselves returned home after several years.

Thirdly, these non-agricultural workers were educated enough to handle the modern machines in the factories, because a compulsory primary educational system of six years had been diffused throughout the country as early as in the 1880's, just before the beginning of the industrial revolution in Japan.

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Thus, the economic development of Japan in pre-war times was effectively supported by an abundant and comparatively cheap labour force with good education.

II. Post war trends in migration and redistribution of population

Concerning migration in post-war times, it is a well-known fact that a remarkable change in migration and urbanization has appeared both in volume and significance, especially since 1955 when economic growth was greatly accelerated. In the period 1955 to 1970, rural-urban migration increased very much over pre-war levels and exerted a great influence both on rural and urban areas, especially from the point of view of employment and education.

The long-term trend in the volume of net in-migration is shown in Table 1. It is clear that almost all net in-migration has been absorbed into the four metropolitan areas through the whole period from 1920 to 1970.

However, as for the total volume of net in-migration, Table 1 shows that there was a conspicuous increase during this period. In pre-war times, the net in-migration increased from 1,179 thousand during the five years of 1920-25 to 1,674 thousand during 1935-40, but after the war it went up sharply to 3,263 thousand in 1960-65 and increased nearly three times over pre-war levels.

Such increase and concentration of net in-migration into the metropolitan areas inevitably leads to regional differences in population changes. In Table 2, three categories are adopted in order to divide the population changes of the forty-six prefectures in Japan. They are: population increase with net in-migration; population increase with net out-migration; and population decrease.

As indicated in Table 2, the number of prefectures which showed population decrease was only three or less among the forty-six prefectures during the period from 1920 to 1935, and this number was still low in 1950-55 after World War II, though in 1935-40 it went up to thirteen because of the increase in migration during war times. In contrast with this, after 1955 the number of prefectures with population decrease increased remarkably to twenty-six for 1955-60 and twenty-five for 1960-65, over half of the total number of prefectures.

In addition to the apparent changes in volume of migration and urbanization, it must be stressed that a substantial proportion of the migration in Japan consists of young migrants of 15 to 24 years. This results in a great difference of age composition by regions.

III. Regional differences in age distribution

According to the 1970 population census results, interprefectural migrants during the year preceding the survey totalled 3,812 thousand. Among them young people aged 15-19 and 20-24 accounted for 18.4 per cent and 23.7 per cent respectively. In fact, Fig. 1 shows that net migration rates are very high in the two age cohorts of 10-14 and 15-19 years, both in the metropolitan and local areas.

For instance, in Kanagawa, one of the prefectures located in the Tokyo metropolitan area, the net in-migration rates for the age cohort which proceeded from 10-14 to 15-19 years during the period from 1965 to 1970, were 53 per cent for males and 32 per cent for females. The age cohort of 15-19 to 20-24 years also reached 39 per cent for males and 29 per cent for female in the same period.

As opposed to this, in Shimane prefecture located in rural areas, the net out-migration rate is 30 per cent in the age cohort of 10-14 years for both sexes, and 42 per cent for males and 27 per cent for females in the age cohort of 15-19 years. Needless to say, such rural-urban shifts of young people sharply influence the age composition both in the metropolitan and local areas. Table 3 shows several examples of age distribution typical of metropolitan and local areas.

The location quotients of age distribution shown in Table 3 are calculated by relating the proportion of the population in one age cohort in a specific prefecture to the national average in that cohort. In this calculation, the quotient 1.0 signifies that the age distribution in a certain region is the same as that of the total population, and a quotient more than or less than 1.0 means a deviation of the age-distribution from the nation-wide average.

As shown in Table 3, the quotients for 15-19 years of age are 1.240 in Tokyo and 1.131 in Osaka, i.e. 24.0 per cent and 13.1 per cent respectively in excess of the national average. On the other hand, the quotients for the same age group in local regions such as Yamagata and Kagoshima are 0.842 and 0.734, or 15.8 per cent and 26.6 per cent below the national average.

IV. Job and education as factors of migration

The reasons for and implications of the remarkable concentration of young people in metropolitan areas have been widely discussed. In this respect, it would seem unquestionable that there are two fundamental aspects closely related to rural-urban migration. One is a shift related to job opportunity and another is related to educational opportunity.

First, most of the young people who graduate from junior and senior high schools in rural areas have to move to the metropolitan areas in order to get a job, because with the rapid growth of the Japanese economy more and more factories and services are concentrated in the major metropolitan areas. This situation with respect to job opportunities may not appear different from that of pre-war times, but in post-war times the concentration of young people in the metropolitan areas has been so large in volume and so serious in significance that it has resulted in a striking decrease in the agricultural population and even in the population of a great number of smaller cities and towns.

Second, another important motive for young people to move to the metropolitan areas is fundamentally linked to educational opportunities. This is one of the most serious problems peculiar to post-war Japan.

With increasing aspirations to gain access to educational opportunities, demands for higher education have rapidly expanded throughout the country. Advances in educational level from the compulsory education of nine years to senior high and moreover to college and university have been one of the striking features of the social and cultural changes in post-war Japan.

The transfer to senior high from compulsory education, including junior high, would not require, in most cases, any inter-prefectural migration, because facilities for senior high education are available in almost every prefecture to meet the demand. However, colleges and universities are extremely concentrated in the two areas of Tokyo and Osaka, and this results in large numbers of young migrants toward such big cities to enter college and university, adding to those migrants who are looking for a job.

The relevance for migration of the distribution of employment and educational opportunities can be clearly illustrated with statistics.

Table 4 shows how many graduates from high school migrate to the metropolitan areas away from their native prefectures in search of a job. For the graduates from junior high school, the proportions absorbed by the four metropolitan areas are 86.7 per cent for 1962 and 75.5 per cent or about three-quarters for 1972. In the case of graduates from senior high school, the proportions are 90.7 per cent for 1962 and 88.7 per cent for 1972. They are especially dominant in the Tokyo area.

It is very clear that employment opportunities for new high school graduates are strongly limited to the major metropolitan areas, though the proportions are showing a very slow downward tendency (Table 4).

As for educational opportunities, Table 5 indicates a remarkable concentration of college and university students in the four metropolitan areas, reaching 71.7 per cent and 82.0 per cent respectively of the national total for 1971. The university students in Tokyo area alone account for 50.3 per cent of the total.

The actual number of university students more than doubled to 1,469 thousand between 1961 and 1971, and among them non-governmental university students account for a little more than 70 per cent. If only non-governmental universities are observed, metropolitan areas account for 92.3 per cent and Tokyo for 60.1 per cent of all students in non-governmental universities.

Table 5 also shows several important aspects of changing proportions according to grade and educational level completed.

First, in the second line from the bottom in this table, graduates from junior colleges and universities in the four urban areas account for 65.9 per cent of all graduates, while in the bottom line the corresponding labour force accounts for only 46.2 per cent of the national total.

Therefore, it can be said that there is a great demand for people with higher education especially in the metropolitan areas. However, while 82.0 per cent of all university students reside in the four urban areas mentioned, only 65.9 per cent of junior college and university graduates are counted there. This gap between university students now attending and graduates who actually live and work in urban areas would imply that facilities for higher education are far too concentrated in the metropolitan areas. Likewise, this situation indicates that educational opportunities would be most influential in the decision to migrate.

Second, unlike university students, the proportion of graduates from senior high counted in the four urban areas is 54.0 per cent, a figure much higher than that of pupils now attending school of the same level (40.8 per cent). The gap between them would imply the possibility of a large inflow of graduates into the metropolitan areas to meet the demand of urban industries.

Third, another interesting point is that the proportion of pupils attending urban primary and junior high schools is increasing with lower grades. The figure increases from 38.1 per cent for the third year of junior high to 44.9 per cent for the first year of primary school, and reaches 53.1 per cent for the number of births counted in the four urban areas. These changes show that the next generation is now growing up in the metropolitan areas rather than in local areas and, as a consequence, more young people will live in the metropolitan areas at least for a generation unless any drastic changes are introduced.

V. Population changes within the metropolitan areas

Along with the concentration of people in the metropolitan areas, another serious problem is the rapid expansion of residential districts towards the outskirts of the metropolitan sphere.

Fig. 2 shows population growth rates for successive distances of ten kilometers from the civic centre of Tokyo. It is very clear that the area of fastest growth shifted towards the outer zones during the three successive 5-year-periods from 1955 to 1970. The highest rate for the period of 1955-60 was some 29 per cent occurring at the distance of 10-20 kilometers from the civic centre. For 1965-70 the highest growth-rate was 42.1 per cent occurring at the 30-40 kilometer zone, while the first ten-kilometer zone did in fact loose population.

These striking intra-urban shifts of population are especially due to young couples with one or two children, who move out from the inner zone of metropolitan areas in order to obtain better housing. In consequence, such moves by young couples produce an age distribution typical of suburban districts, and a rapid population growth.

Fig. 3 shows a population pyramid by five-year age groups of a satellite city located a little over 30 kilometers away from the civic center of Tokyo. In this pyramid, males aged 25 to 39 years and females aged 20 to 35 years represent young couples, and the broad base of the pyramid in the age-bracket 0-9 indicates the relatively high fertility of these couples.

An age distribution such as the one presented in Fig. 3 implies

Table 1. Volume of net in-migration in the metropolitan areas, 1920 - 1970

(thousand)

Area	Metropolitan Areas				Others	Total
Year	Tokyo	Osaka	Nagoya	Fukuoka		
1920 - 25	625	456	90	—	8	1,179
1925 - 30	678	434	76	81	57	1,326
1930 - 35	675	778	103	66	10	1,632
1935 - 40	809	488	118	196	63	1,674
1950 - 55	1,611	639	166	47	49	2,512
1955 - 60	1,580	744	239	—	—	2,563
1960 - 65	1,971	964	309	64	9	3,263
1965 - 70	1,401	609	228	—	86	2,238

Note: "—" denotes minus

Table 2. Number of prefectures by three types of population changes, 1920-1970

Year	Population increase		Population decrease
	Net in-migration	Net out-migration	
1920-25	8	37	1
1925-30	9	37	0
1930-35	9	34	3
1935-40	7	26	13
1950-55	7	32	7
1955-60	7	13	26
1960-65	11	10	25
1965-70	12	14	20

that the demand for kindergarten and compulsory school facilities would rise very rapidly in such growing communities. This will place heavy educational expenses on the local municipalities.

VI. Conclusion

In response to the tremendous migration into and within the metropolitan areas, the population in rural areas is decreasing so seriously that it may become impossible to maintain basic activities essential to their social and cultural life, such as education and medical care. In overly depopulated communities, primary and junior high schools are already being consolidated on account of financial difficulties.

In addition, as already mentioned, the number of births in metropolitan areas is becoming dominant and consequently it may become more difficult for rural people to recover the infant population needed to strengthen the rural communities.

Thus, both in the metropolitan and rural areas, though they are in opposite situations, the impact of conspicuous migration on the social and cultural life will be serious throughout the country in the near future.

Table 3. Location quotients of age distribution in metropolitan and local prefectures, 1970

	Metropolitan areas		Local areas	
Age	**Tokyo**	**Osaka**	**Yamagata**	**Kagoshima**
Total	1.000	1.000	1.000	1.000
0-14	0.879	0.998	0.982	1.133
15-29	1.240	1.131	0.842	0.734
30-44	1.021	1.044	0.992	0.901
45-59	0.883	0.852	1.190	1.174
60-74	0.783	0.803	1.237	1.312
75 and over	0.664	0.636	1.098	1.603

Table 4. Graduates employed in metropolitan areas as per cent of all graduates from high school who left native prefectures to get a job, 1962-1972

Year	Metropolitan areas				
	Tokyo	**Osaka**	**Nagoya**	**Fukuoka**	**Total**
		Graduates from junior high school			
1962	40.8	28.1	16.5	1.2	86.7
1963	40.7	27.6	16.9	1.1	86.3
1964	38.1	28.1	17.7	1.2	85.1
1965	39.2	26.1	17.5	1.4	84.1
1966	39.6	25.2	16.7	1.7	83.2
1967	38.9	25.2	16.3	2.0	82.3
1968	37.7	23.9	16.8	2.0	80.4
1969	34.5	23.9	17.9	2.1	78.3
1970	33.4	23.9	18.6	2.0	77.8
1971	32.0	22.0	20.7	1.9	76.5
1972	30.7	21.4	21.4	2.0	75.5
		Graduates from senior high school			
1962	52.3	29.3	6.5	2.6	90.7
1963	53.3	29.6	6.8	1.6	91.4
1964	51.8	29.6	8.2	1.6	91.2
1965	51.5	29.5	8.2	1.6	90.8
1966	51.8	29.6	7.9	1.8	91.1
1967	50.9	28.5	8.6	1.9	89.9
1968	50.6	27.8	8.3	1.9	88.5
1969	51.3	27.2	8.3	1.8	88.7
1970	52.2	27.0	7.8	1.7	88.6
1971	53.0	26.1	8.2	1.6	88.9
1972	52.0	26.4	8.8	1.5	88.7

Table 5. Births, pupils, students, graduates and labour force in metropolitan areas as percentages of the national total, 1971

	Metropolitan areas				
Grade	Tokyo	Osaka	Nagoya	Fukuoka	All four areas
Births	26.9	16.5	6.1	3.6	53.1
Primary pupils	21.7	14.2	5.2	3.8	44.9
1st	23.7	15.3	5.5	3.7	48.1
2nd	22.7	14.8	5.4	3.7	46.5
3rd	22.1	14.6	5.3	3.8	45.8
4th	21.2	14.0	5.2	3.8	44.2
5th	20.5	13.5	5.0	3.9	42.9
6th	19.7	13.2	4.8	4.0	41.6
Junior High students	18.3	12.5	4.6	4.0	39.3
1st	18.8	12.9	4.7	4.0	40.5
2nd	18.5	12.4	4.5	4.0	39.4
3rd	17.6	12.1	4.4	4.1	38.1
Senior High students	19.1	12.8	4.7	4.2	40.8
Junior College students	34.2	25.3	7.4	4.9	71.7
University students	50.3	20.7	6.2	4.8	82.0
Graduates from					
Primary & Junior High	18.5	13.5	5.4	3.5	40.9
Senior High	27.2	17.2	5.1	4.5	54.0
Junior College & University	39.7	17.8	4.8	3.6	65.9
Labour Force	22.7	14.5	5.4	3.6	46.2

Fig. 1. Comparison of net migration rates by sex and age cohort in metropolitan and local prefectures, 1965-70

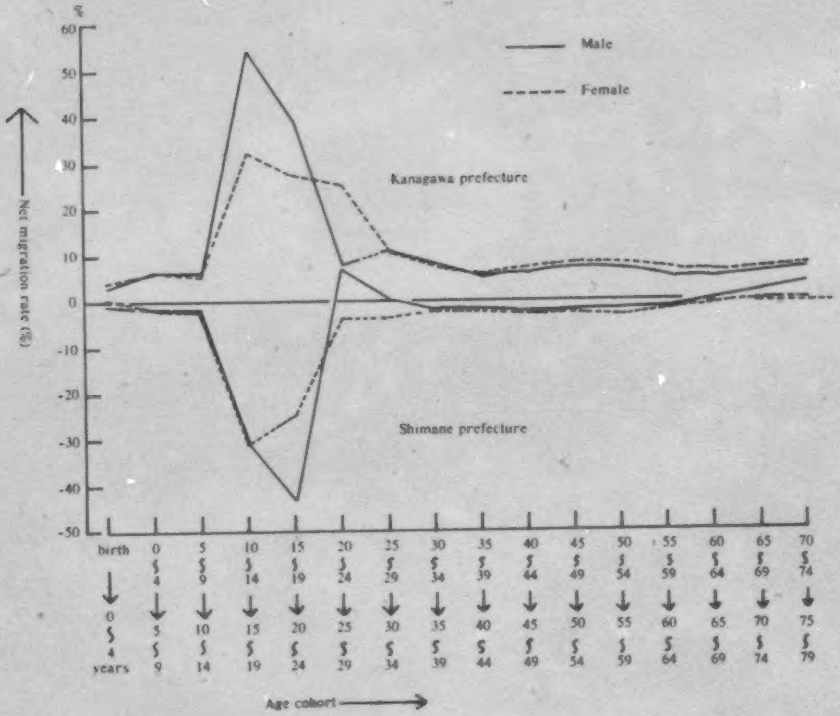


Fig. 2 Population growth rates by distance from the civic center of Tokyo, 1955-1970

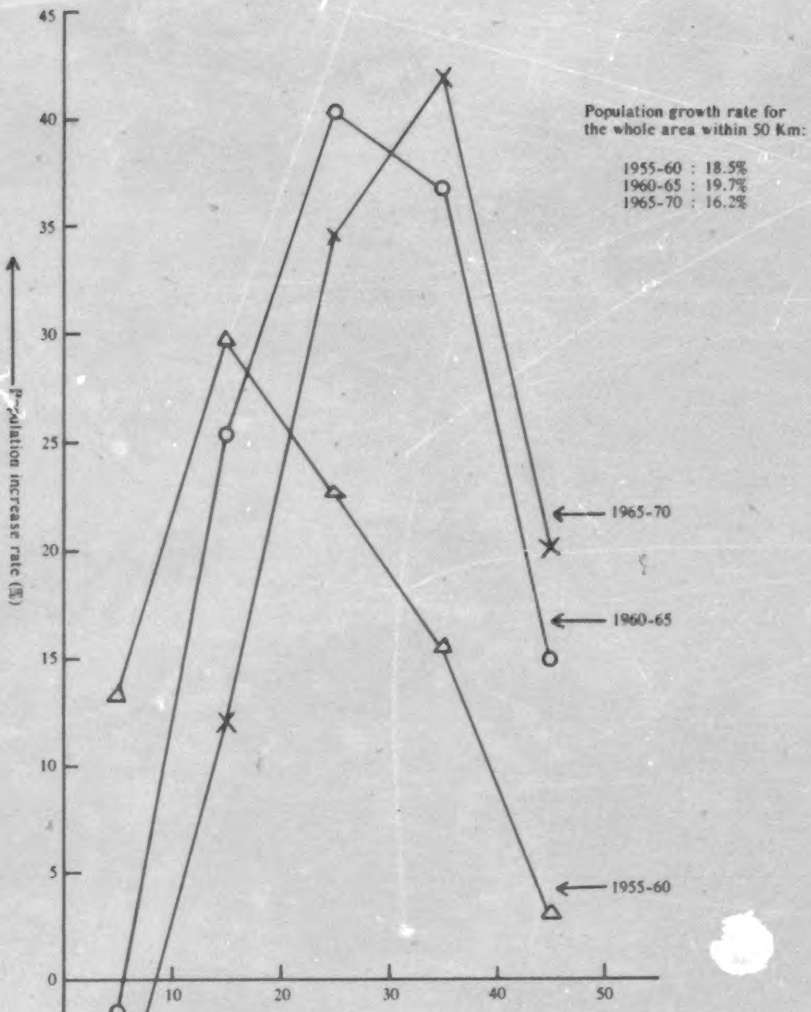
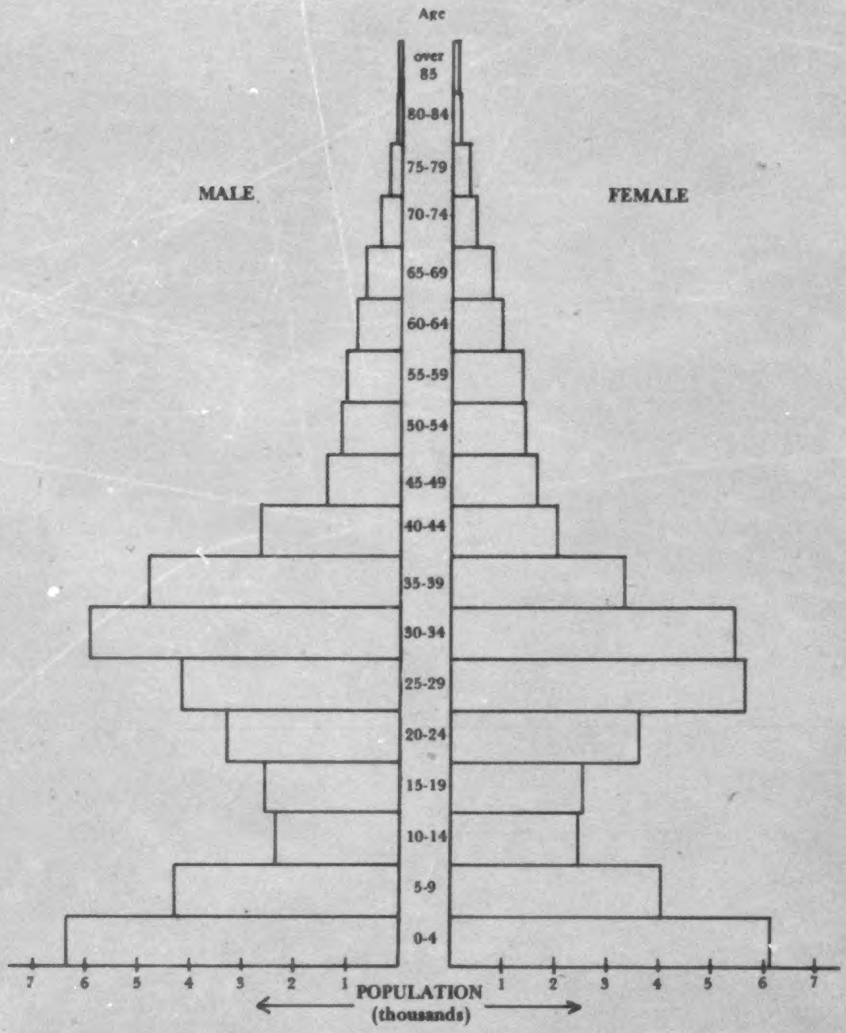


Fig. 3 Population pyramid of a satellite city. (Kasukabe) by five-year age groups, 1970.



PART FOUR

THE NEED FOR EDUCATIONAL INNOVATION

1. THE PROBLEM

I. The need for educational innovation

The preceding sections of this volume have pointed to the adverse effects on educational development of rapid population growth and rural-urban migration in Asian countries. However, educational planners should not look upon themselves only as casualties of population dynamics. What is essential for them to recognize is that education has a crucial contribution to make in the current effort of developing countries to solve the social and economic problems posed by demographic pressures.

Yet, caveats should be voiced against the kind of inconsiderate and one-sided emphasis that often results from the opening up of new perspectives for action. A straightforward educational policy of "more of the same" would in all likelihood accentuate rather than resolve the population problem.

Statistical studies of the relationship between educational attainment and fertility are often summoned to witness that expansion of education is bound to lead, sooner or later, to the desired fertility decline. Certainly, numerous studies of a cross-national or sample-survey type have found a strong negative statistical association between fertility and educational achievement. But researchers have been quite reluctant to draw direct conclusions regarding causal background and operational consequences of such findings. David Heer is probably right in summarizing that "most but not all...data indicate that fertility and educational attainment are inversely related. Yet despite the mass of data very little is actually known about the causal mechanisms".[1]

The main difficulty seems one of separating the influence of education in bringing about fertility decline from those of other "modernization" factors, such as health progress, better communication, increasing incomes, urbanization. Very often, statistical covariances suggest simply that a whole cluster of inter-related socio-economic factors has

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by Unesco Secretariat

[1] Heer, David M., Educational Advance and Fertility Change, Proceedings of the IPC, London 1969, Vol. 3. Liege, I.U.S.S.P., 1971

been instrumental in lowering fertility. Moreover, and more specifically, there is evidence that the positive effect of the conventional type of education on limiting family size is felt only above a certain threshold, which may be as high as 10 years of schooling. Considering that the vast majority of rural children in Asia never get that far, the education-fertility relationship loses much of its presumed relevance for educational planners. In addition, it has been suggested by some of the contributions in this volume that expanding the conventional educational system can, in fact, intensify population dynamics by accelerating the process of rural-urban migration.

Therefore, educational planners willing to meet the challenge of population dynamics will have to explore new avenues, including major reforms of educational structures and contents. The response of education to population dynamics lies in innovation rather than expansion.

II. Educational innovation as part of general development strategies

First and foremost, it would seem imperative that educational planning and innovation, in order to meet the population challenge, should form part of integrated development strategies.

At the level of the individual and the community, education towards more rational reproductive behaviour can make little headway as long as other vital conditions, that is, the economic, cultural and social framework shaping individual behaviour and modernization prospects for the community, are not being developed simultaneously. One cannot expect responsible and informed decisions regarding family size, spacing of children, or the question of migration, in a context of economic backwardness, traditional cultural norms and social structures perpetuating apathy. Relevance of education for the individual can only mean that education is geared to practical development in such a way that the skills being taught become applicable, the knowledge translatable, and the choices genuine. Educational innovation should thus aim at integrating education with concrete and tangible development projects at the local level. It is only through such integration that irrelevance and lack of motivation, the two most persistent plagues of present-day school systems, can be overcome. While this imperative is being reiterated these days in almost every meeting and relevant publication, it becomes even more evident and significant when educational innovation is focussed on the population issue, because the latter combines in itself the totality of development tasks and problems that need solution.

There are developing countries which have launched massive efforts to use educational innovation as an integral part and driving force of general development strategies. Their experience, including both failures and positive achievements, should be carefully studied by educational and socio-economic planners to determine its relevance for other countries with different social, economic and political conditions.

Integration of development efforts at the local level must be accompanied, or perhaps preceded by close coordination at the macro-level. Curbing the rates of rural-urban migration and overall population growth can hardly be achieved by isolated programmes of any single government department, let alone by educational planners. It is exactly because the effects of population dynamics cut across bureaucratic borderlines, that the response of development planners must not be confined to conventional planning within departments.

A major prerequisite of cooperation are adequate and viable forms of institutionalization. Reflecting on this need, some countries are now in the process of establishing new types of high-powered interdepartmental bodies to design and carry out integrated development programmes. It would seem important that an exchange of experience concerning the structures, responsibilities and functions of such bodies should take place.

III. Tailoring educational programmes for different population groups

Concern with the population issue has the important advantage of sharpening awareness amongst educational planners that their clientele is by no means uniform. The planner will soon come to recognize that population processes and problems differ in incidence, relevance, and causal background, not only between countries but also between different sub-groups of the population within his own country. Perhaps the most significant aspect of this observation is the differential incidence of high fertility patterns amongst different population groups. Unfortunately, the theory of differential fertility, particularly in developing countries, seems to be one of the less elaborate segments of demographic theory [1]. But there is sufficient evidence suggesting that group-disparities in income, social status, access to information, prevalence of traditional attitudes and values, and, last but not least, provision of adequate education, are often mirrored in fertility differentials between groups.

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[1] see Allman, James, The Impact of Education on Fertility Patterns; An Analytical Survey of Research Findings. Paris. Unesco, Social Sciences Methods & Analysis Division, 1973. mimeo.

Thus, educational planners face target groups whose cultural and socio-economic characteristics, including demographic features, may be vastly different. In this situation, educational programmes run the danger of being too uniform or, even worse, imply a process of group-selection which is exactly contrary to the differentiation needed if education wants to make a specific impact on those groups which are disadvantaged in terms of high fertility and low socio-economic status.

As planners try to diversify educational provision in terms of structures, spatial distribution, and curricula, problems of equity will assume vital importance. Neither conceptually nor on the level of practical indicators are there any objective and commonly agreed standards to determine what particular allocation of educational resources will be the most equitable in a given situation. Clearly, equity cannot mean uniformity, but depending on what equity criteria are chosen, a variety of possible strategies to diversify, specialize and focus educational programmes for different population groups can be called "equitable"[1]. One aspect of this dilemma, where improvements seem possible, is the lack of basic information on how educational facilities within a country are actually distributed and differentiated to match the distribution of population groups which need varying types and quantities of educational provision. Detailed school mapping related to equally detailed, regionalized surveys of the population should thus become a regular exercise for educational planners.

As the concept of global educational planning with predominantly economic orientation becomes more and more a relic of the past, planners need to know much more about their target populations than they used to. Individuals are more than earners of income or holders of a certain occupation. If it is the quality of their lifes that we try to improve through educational planning, then the totality of individuals' roles as citizens, members of a family, exponents of certain cultural values, religious believers, consumers, users of health, transport and information services, etc., turn into pieces of information essential to the educational planner. Tailoring educational programmes for different population groups depends on the systematic collection of such comprehensive information. At least, this seems to be the direction into which educational planners should go.

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[1]. For a more detailed discussion of the equity issue in education see the following contribution in this volume: Challenges of the Population Issue for Educational Planners: Introduction to a Methodology.

IV. Rural community education

Innovative educational programmes to match the needs of particular population groups have quite frequently been proposed and, in fact, a number of developing countries are carrying out practical experiments along these lines.

Undoubtedly the most significant target population group for educational planners are rural youth. There is equally little doubt that the thrust of educational innovation will have to be directed towards improving the quality of life and the demographic behaviour of this neglected majority. With guarded optimism, it can be said that governments and planners in many developing countries are actively aware of the task they are facing. Judging from the intensity and variety of current efforts, education for rural life is about to take on a new shape [1].

One of the most widely discussed innovations in educating the rural youth is that of environment-oriented, project-based rural community education.

Conventional forms of rural education are often being attacked for not only ignoring the real learning needs of the rural population, but also contributing actively to rural exodus. As an alternative, it has been proposed to organise rural education around practical projects that are relevant to the development of the rural setting. Organised at the community grass-roots level and involving the resources, cooperative services and expertise available in the community itself, this form of education aims primarily at an understanding and eventual mastery of some of the vital problems of the rural environment such as irrigation, use of fertilisers, formation of cooperatives, improvement and proper utilisation of health and family planning services. It is expected that the rural youth, including those hitherto neglected by formal classroom education, would thus be equipped not only to live and remain in their environment but also to modernise and develop it.

There is, of course, a variety of ways in which the basic concept of rural community education can be adapted to specific national objectives, socio-cultural conditions, and ecological and agricultural settings.

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[1] For a survey of national projects, see International Council for Educational Development, Non-Formal Education for Rural Development. Strengthening Learning Opportunities for Children and Youth. Interim Report prepared for the United Nations Economic and Social Council, 1973.
A comprehensive bibliography is found in: Education for Rural Life, Bulletin of the I.B.E., 46th Year, No. 183, 1972.

Two of the contributions in this volume offer practical and concrete prototype solutions to put rural community education into practice [1]

V. Beyond the monopoly of the formal school system

It is increasingly questioned whether efforts to affect population dynamics through educational strategies can be confined within formal school systems. The formal school system, in many countries, tends to perform best where demographic issues are less acute, i.e., amongst upper and middle class children in urban areas. On the other hand, its coverage and quality would appear less satisfactory when it comes to those sections of societies which act as crucial intensifiers in the process of continued rapid population growth. To quote the report of the Second Asian Population Conference: "...hitherto, the major part of the expenditures on education have been devoted to the formal school sector, but large numbers were outside this sector. They were important not only from the point of view of their contribution to fertility behaviour, but also as potential contributors to the economy of the country." [2].

The fact that in many countries the share of educational expenditure in G.N.P. or public budgets is about to reach critical proportions also points to the necessity of mobilizing the educational potential of agents and institutions outside the formal school system [3]. In a systematic and at the same time imaginative manner, educational planners should therefore examine which institutions and services in society have an underutilized capacity to perform educational functions, and how their potential could be mobilized. There is little doubt that, under such scrutiny, for certain population groups and for certain educational functions (custodial care, skill acquisition, cognitive development, etc.) institutions and services other than the school system in its present form will emerge as the best agent. Where this is the case, educational functions should be transferred away from the school.

It should, however, be perfectly clear that questioning the monopoly of the formal school system does not mean a complete de-institutionalization of education. Refuting those who have declared it dead [4], the formal school system still exists as the only sufficiently institutionalised agent of educating the masses, available to developing countries. In trying to assign a more active role to peri-scholar channels of education, educational planners should be aware that the organisational and administrative capabilities of non-formal channels of education are still very weak.

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[1] see pages and below.

[2] Second Asian Population Conference, Final Report, p. 41.

[3] Cf. the recommendation made by the International Commission on the Development of Education: Learning to Be, Unesco, 1972, p. 228-9

[4] see Reimer, Everett, School is Dead. An Essay on Alternatives in Education. Harmondsworth, 1972.

VI. Education as an incentive to limit family size

Another innovative response of educational planners to the challenge of population dynamics could be the introduction of educational incentive programmes to limit family size. The idea of employing educational incentives was originally generated and developed by family planning experts, and educational planners have only recently begun to discuss its relevance in remodeling the financing and administration of education. Yet, a start has been made towards the transfer of innovative ideas and experience between planners in different sectors.

The rationale for educational incentive programmes is quite clear-cut:

Surveys undertaken to evaluate family planning programmes in Asian countries have revealed that the desire to give adequate education to their children constitutes one of the most powerful potential factors to shape parents' decisions about family size. Amongst both urban and peasant families there seems to be widespread awareness of the value of education, although this insight is somewhat irrelevant as long as many of them are unable to bear the costs of education, whether they have few or many children.

This observation may provide the rationale for publicly administered programmes under which the decision of couples enrolled in the programme not to have more than a given number of children is rewarded, after a certain time period, by some material benefit, e.g., in the form of free secondary and higher education bonuses.

The variety of educational incentive schemes that are now being discussed between population and education planners seem to have a few principles in common:

- they make deliberate use of the material importance and motivational power of the education issue for individual decision making
- they employ positive rewards as opposed to negative sanctions
- they are organised on a strictly voluntary basis.

It should be realised that, in most countries, the existing social and educational legislation does already imply manifold incentives and disincentives with a strong bearing on family size decisions: the basic pro-natalist effect of free education laws has often been critically mentioned; similarly, maternity and social welfare benefit schemes provide positive incentives to have more children; preferential treatment of large families in urban housing schemes provides another example of pro-natalist incentives, and so forth.

A number of practical and, more important, fundamental problems will, however, require careful consideration before educational incentive schemes can possibly be adopted as an integral part of education and population policies.

At the practical level, for instance, thorough cost-benefit analyses should be conducted to show whether the prospective benefits of such schemes in terms of reduced population growth rates, increased enrolment at higher levels of education, maternity and other social welfare payments saved, will outweigh the additional public expenses incurred, especially the administrative costs of running the scheme.

A choice will also have to be made as to who should be the recipient of incentive payments. The most obvious option would probably be payments made to individual couples directly. However, communities, villages, or districts may also receive incentives, e.g., in the form of new schools to be built or better teaching/learning facilities provided, if average fertility in a given community has been brought down to a desirable level.

In this connection, educational planners should also consider the partial transfer of financial responsibility for education from the central to the community or district level. The pressure of population on educational provision is felt only indirectly by the communities as long as central allocation of funds, based on reported population figures, provides for additional resources proportionate to population increase. Once communities themselves share the financial burden, they will become more sensitive to the disadvantages of continued high fertility, and the incentive to report high population figures in order to obtain a large share of central revenues is likely to disappear.

Whatever practical solutions will be adopted, perhaps the most serious danger to be avoided is that of violating the equality principle. Opportunities to utilise existing family planning services are, as a rule, unevenly distributed throughout the population, considering the information gaps and accessibility problems that still prevail amongst the disadvantaged sections of societies. Educational incentive schemes which fail to acknowledge such problems may thus contribute to a possible deepening of educational disparities between different population groups.

VIII. Perspectives for population education

Since the Singapore Conference of Education Ministers in 1971 recommended stepping up national efforts and regional cooperation in the field of population education, the introduction of population related materials at all educational levels including teacher training colleges has become the most immediate and important response of educational planners to the challenge of population dynamics in the Asian region.

Unesco, acting as executing agency for the United Nations Fund for Population Activities, is at present assisting six Asian countries - Indonesia, Korea, Malaysia, Philippines, Sri Lanka, and Thailand - in the preparation and execution of national projects in the field of population education. Other ongoing programme activities aim at facilitating regional cooperation and exchange of information relevant to population education.

Current national programmes in the field of population education differ in scope, coverage, and initial sector of emphasis chosen. Some governments, recognising the urgency of population problems in their countries, have decided in favour of a massive and immediate effort to introduce population education throughout the school system on a nationwide scale. Others have given preference to a stepwise strategy which foresees initial attitude surveys among teachers, educational administrators, and community leaders, tentative introduction of population education materials at certain grades, and other preparatory steps. As uniformity of population education contents between countries would seem inappropriate in view of different cultural, demographic, and socio-economic conditions, so would uniform strategies of introducing population education probably be detrimental rather than helpful.

Looking at the likely future perspectives for population education, major tasks still await solution: comprehensive evaluation of what population education can achieve in terms of relevant knowledge and rational attitudes amongst pupils towards population related issues marks one of these tasks. Although "KAP"-surveys carried out to evaluate national family planning programmes provide useful experience, specific tools and procedures will have to be designed to evaluate the impact of population education on different sections of the school population.

As a second major task, population education will in due course have to be extended beyond the boundaries of formal school systems which to date are the main recipients of population education programmes. While the formal school system has provided the most obvious and feasible starting point, it has to be stressed that the more important and critical clientele for population education is found outside the classroom. If the challenge of rapid population growth and change is to be taken seriously, then these groups will have to be reached, regardless of the magnitude and difficulties of the task. For young married couples, young rural workers who have dropped out of school, nomads and other tribal minorities, jobless young urban migrants, and so on, appropriate ways of transmitting the population education message will have to be explored and put into practice.

2. A NEW ORIENTATION TO EDUCATIONAL PLANNING

Challenges of the Population Issue for Educational Planners: Introduction to a Methodology

I. Introduction

The papers assembled in this volume provide information about the population and educational situation in the Asian region and about the impact of population growth and migration on socio-economic and educational development. They also confront us with a range of (macro) educational strategies and (micro) innovative educational projects which could possibly help in solving the population problem.

Our knowledge on the magnitude and characteristics of the relationship population → education in the Asian region is quite substantial. Our experience in testing educational solutions to the population problem (education → population) is much more limited. The possible "solutions" put forward in this volume are still at the stage of being developed and evaluated and cannot yet form a sound basis for a reallocation of national resources in this area.

It is recognised in many of the papers presented that an educational strategy aimed at tackling the population problem should be an integral part of an overall development strategy designed to reach this objective. This would indicate that the role of the educational planner is vital in helping to design such a comprehensive strategy. Since most population programmes in the Asian region are being executed in close co-ordination with the national socio-economic planning bodies of the countries concerned and since the educational planning offices seem to have the closest institutional as well as functional links with such national planning bodies, educational planning may well become the "discipline" responsible for programming and evaluating population activities in the education sector.

In the paragraphs below an attempt is made to arrange the various macro and micro "solutions" into a framework which could become a tool for decision-making in this field. Educational planners could thus contribute to the development of innovative decisions in the education → population area and to the formulation of pilot programmes at the national, regional and local levels.

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A still more important question raised in this paper is whether a closer analysis of the population dynamics dimension of educational planning could not be instrumental in changing the entire "philosophy" of such a planning process towards a more individual welfare-oriented approach.

An attempt at answering such a question becomes crucial if we accept the argument made in some of the papers contained in this volume, i.e. that:

- education should be part of a realistic development strategy aimed at solving problems that are causing people suffering and dissatisfaction and aimed at creating a society where each individual has a way of asserting his identity and has a meaningful role to play.

- the individual or micro-level decision-making is a fundamental building block in the process of development, and a development strategy which attacks the population dynamics problem requires a change in individual decision-making as well as a change in those social and traditional constraints which frustrate such a decision-making process.[2]

II. Why a change in the traditional education planning process?

A change in the traditional educational planning process is required, mainly because an evaluation of the achievements of educational planning shows a continuous discrepancy between reality and what educational planners say they do or are trying to do. "Manpower needs for development", which was once the most prominent efficiency criterion introduced by the West now is widely discredited in most Asian countries, not only because few educational plans based on manpower arithmetic have ever been implemented for political reasons, but also because it is viewed culturally as too primitive a concept. Another efficiency criterion like the social rate of return approach has had almost no direct impact on public educational investment policy in Asian countries and has served mainly as an intellectual focus for scepticism about manpower planning.

The actual development of educational systems has been mainly a response to the structure of private rates of return (i.e., social demand), with the public authorities continuously driven to expand the provision of places in educational levels and types with high rates of return.

Yet the pressure of social demand is distorted by the differential distribution of power. For these reasons, the solutions to the distribution problem actually reached vary considerably in the degree to which different social groups participate in them.

Since the typical structure of private rates of return is an inverse pyramid with the higher rates corresponding to higher levels of education [1], the general effect of the pressure of social demand has been to cause most public authorities to shift more and more resources into the higher levels of education even with significantly less than complete coverage of the lower levels. e.g., in Asia the average annual increase in enrolment during the period 1960-1970 has been 4.8 per cent for the primary level as against 5.5 per cent at the secondary and 11.7 per cent at the higher level.

The result has been that a number of Asian countries still have large portions of their populations who are without access to any educational services at all, while simultaneously governments in these countries have been prepared to tolerate high levels of unemployment among educated pupils.

The operations of the market for educational services in the Asian region have therefore led neither to a universal minimum provision of educational services (equity criterion) nor to economically efficient solutions to the distribution problem (efficiency criterion).

These developments have contributed to the sharpening of the problems of equity in education, as expressed in terms of social class and ethnic inequalities in educational opportunities, achievements and benefits, rural-urban and interregional inequalities, etc., and have resulted in heightened political awareness and intensified political pressure by disadvantaged groups. A re-thinking of the educational planning practice is thus urgently called for.

III. Suggesting a conceptual model

A re-definition of educational objectives

When analysing the educational objectives as formulated in the socio-economic development plans of countries in the Asian region, one may observe that such objectives are mainly drawn from macro development goals appearing under some of the other sectoral headings

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[1]. Mainly because private costs are held down by the tendency of public policy to minimize fees.

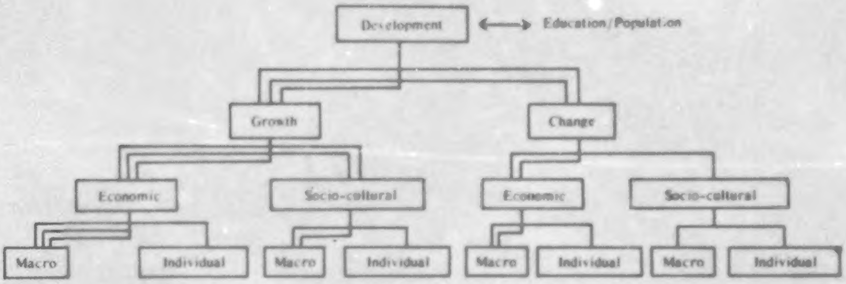
(e.g., agriculture, industry, services, health/nutrition, etc.) amended by a number of more general society-oriented goals.

Educational goals thus fit almost always in the following pattern:

Education for:

	Economic	Political	Socio-cultural, Socio-structural
Growth :	Self-sustaining economic growth; Raise level of living	Nation building	Consciousness; Integration; Modernization
Change :	Change production structure; Industrialization; Diversification in agriculture; etc.	Self-reliance; Autonomous choice of economic, political, social structures;	Change social structures; Change norms and value patterns;
Distribution :	More equal income distribution	More equal distribution of power	Social mobility; Emancipation

The individual dimension of the development process, i.e., how does development contribute to the individual's identity, his meaningful and socially productive role in society, etc., is hardly ever reflected in such a macro goal setting exercise. Thus the picture we get is rather out of balance as is illustrated in the diagram below, where the number of lines indicate the relative emphasis given to each of the development dimensions identified.


Development
Education/Population
Growth
Change
Economic
Socio-cultural
Economic
Socio-cultural
Macro
Individual
Macro
Individual
Macro
Individual
Macro
Individual

In an attempt to correct such an imbalance, countries will have to aim at reformulating their educational/population objectives in the following directions:

- They should be directed at all the population groups in society and not abandon that part of the population which has missed out on education altogether or which has been rejected by the system.
- They should be formulated as much as possible in terms of individual needs and potential individual roles as reinforced by more general social aims regarding community organization, collective participation in community effort, linkage between various communities and ethno-linguistic groups, etc.
- They should aim at an iterative process between "users" and "producers" of education.

Educational planning as an instrument for directing national and international resources towards the attainment of population-centered objectives

Educational planning should gradually become an instrument for answering the following questions:

- What are the population groups at which educational efforts are directed?
- What are the present and future roles and sub-roles of these population groups and what modules of skills, attitudes and values would they require to perform these roles more adequately?
- Which are the institutions and services in society that at present are performing educational functions and which of the other services in society have an un-utilized or under-utilized capacity for performing such functions which could be mobilized?
- How can we manage the transfer of some of the functions which are at the moment assigned to schools (with well-known unsatisfactory results described as "unfitness") to other services in the society and what part of the school technology is transferable in this respect?

Educational planning has never been considered in this light and consequently the development of techniques and tools required for answering the above questions has hardly started. Still, it may be possible to explore a number of possible tools which have a potential for being utilized for this purpose.

The total framework

In Annex I, a grid is presented in which all four questions raised above are put in an analytical framework.

In the vertical column the population is broken down by major socio-economic characteristics which in most cases can be derived from the macro data as collected through household surveys, economic and population statistics, etc. Each of these population groups are then broken down by major role (worker, parent, etc.) and sub-role (economic, biological, etc.). Some of this information is available in quantitative terms (occupational classification, K (nowledge) A (ttitudes) P (ractice) Surveys, etc) but most of it will necessarily be of a qualitative nature and can only be extracted from socio-anthropological studies and surveys.

On the horizontal line, institutions or, better, services in society which could perform educational functions are listed (school by type and level, family, church, etc.) and broken down by function (custodial care, value formation, etc.). The basic question which requires an answer is: "What type of learning module (as defined in terms of cognitive skills and values/attitudes) is required by the performer of a certain role (say worker) in a certain socio-economic group (say urban secondary school graduate between 25-30 years earning between $100-$150 per month), in order for him to perform the different sub-roles (say biological survival) better and more efficiently?" While one person performs various roles simultaneously (e.g., parent/worker/consumer) there are a number of sub-roles which are relevant to all of them, e.g., a person performs an economic function when, as a parent, he decides on sending his child to a fee-raising school simultaneously with, as a consumer, deciding on buying a transistor radio and as a worker on working overtime. It is towards an improved performance of such sub-roles that the learning modules should be directed.

The next question is then: "To what extent is each service in society (say school) contributing to this 'optimum' learning module, which functions (e.g. custodial care) are performed by such a service, and how can some of those functions be transferred from one service to another (e.g. custodial care from school to family or cognitive skills from school to factory) if there is under-utilized educational capacity in the latter?"

One very important dimension which is not shown in this framework is the time dimension. In order for the framework to become an educational planning tool, it is not only necessary to make some assumptions about the future development of population groups by socio-economic characteristics, roles and sub-roles but also about the relative changes in societal services. Since learning and readiness to perform certain roles takes place through experience over time, a next step in refining the grid will necessarily have to concentrate on this process dimension of the role/service relationship over time.

The population profile

While the grid in Annex I tries to give the total picture, it may be possible to magnify some of its components separately. In Annex II the "population characteristics" dimension of the framework is lifted out and described in some more detail. An attempt is made to describe, as an example, the population of Malaysia (around 1968) in various geographical, urban/rural, ethno-linguistic and socio-economic terms. This is an initial step required in order to be able to identify the basic characteristics of the potential consumers of educational services.

Roles, sub-roles and functions

Grid II in Annex III magnifies the relationships between roles and potential educational services while in Grid III of Annex IV a breakdown of such services by basic function (custodial care, selection, value formation and cognitive education) is attempted. A necessary step to be taken before the empty boxes of these two grids can be filled out, is to undertake a stocktaking of roles and sub-roles and of educational functions classified by type of societal service. Such a stocktaking exercise can be undertaken on a sample basis for a number of population groups with different basic characteristics in a rural, semi-urban and urban environment.

The learning module

A learning module consists of cognitive skills, values and attitudes. While these components of the learning module are basically a "Western" invention, the different systematic categories and sub-categories identified may also be applicable to a classification of Third World learning situations, although it is recognized that the content of such categories will be completely different.

As an illustration, Annex V and Annex VI present respectively a systematic listing of cognitive skills and sub-skills and a list of indicators of modernization attitudes as identified by five different sources.

An application in the field of population dynamics may illustrate the above procedure. Suppose we wish to change a certain population pattern (say rural-urban migration) through a strategy which involves educational measures, then it would be necessary to investigate which are the basic values, attitudes and cognitive skills required to change the roles and sub-roles of different population groups which influence this pattern. If we could agree on the definition of a learning module for this purpose, the next step would be to identify and mobilize (possibly through experimentation) those services in society which could best provide the components of such a module. The school, in its present form, is probably not very instrumental in changing rural-urban migration patterns in the desired direction; it may even have a negative effect. A change in structure, content and process of the rural learning situation through a shift from formal to non-formal education, complemented by the mobilization of potential educational functions of the family (adult education), the rural cooperative (community education courses), etc., is likely to provide a more effective educational contribution to such an overall strategy.

In Grid IV of Annex VII an illustration is given of a similar argument relating to the role of a worker (his economic sub-role) situated in a specific socio-economic environment. Three alternative learning modules can be chosen separately or in combination for providing the cognitive education required for serving the worker's economic sub-role.

Depending on which of the alternatives (life-long education, functional literacy, on-the-job training) are finally selected, the mobilization of the educational services of the school, factory and/or community is required.

IV. Adjusting "traditional" educational planning concepts and techniques to population dynamics objectives

Present inadequacies

It would be unrealistic to assume that the "new" educational planning concepts discussed in the preceding paragraph could be applied tomorrow. A substantial amount of research and experimentation will be necessary and this requires time. In the meantime the educational processes as we know them today are inadequate in attaining most of the educational system's objectives, including objectives relating to population dynamics. Firstly, formal educational services do not reach those population groups which are the driving force behind population dynamics (e.g., the rural poor). Secondly, the content and structure of educational services are hardly ever geared to absorb information/communication programmes on population growth and change. Thirdly, decision-making in population matters being mainly an individual and/or family-affair, with outside influence having little chance of success in the long run, the role of participation in educational processes is crucial. However, educational participation seems still a rather distant goal in most of the countries of the Asian region.

Simultaneously with the development and testing of new educational planning concepts and tools, it is necessary to review existing educational planning practices and their impact on population dynamics, with the aim of adjusting such "traditional" practices where this impact is negative.

The supply of educational services [1]

There is an obvious precondition for the resolution of problems of population dynamics by means of strategies which include education, namely that the differential demands for educational services be corrected in the direction of a more equitable distribution.

Educational planners have to intensify the dialogue with policy makers and citizen representatives on an objective measure of equity in the distribution of educational services. In this connection two question have to be asked:

- Is the equity focus to be the distribution of educational services per se, or the distribution of things outside of but dependent on education (income, citizenship participation, etc.)?
- Is the equity focus to be the concept of a minimum universal provision or some formal characteristics of distribution itself (mean years of schooling completed, coefficient of variation, etc.)?

These two sets of alternative approaches can be summarized in a matrix as follows:

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[1]. Arguments developed in this section can also be found in John A. Smyth, Equity criteria in educational planning. Internal discussion paper, Paris, Unesco, n.d., mimeo.

	A. Educational Services per se	B. Education-dependent things like income, citizenship participation, etc.
I. Minimum universal provision	e.g. universal primary education or compulsory schooling of 5-15 age group	e.g. universal literacy or income-poverty floor
II. Character of distribution itself	e.g. shape of the educational pyramid	e.g. coefficient of variation of incomes

As box A/I indicates, universal primary education is the most common measure of an equitable minimum provision of education services per se. Critics of this measure, who can also be found in some Asian countries, use two types of arguments: Firstly, in practice this measure means according primacy to schooling. Schooling is considered an inappropriate instrument for attaining the goals of primary education, especially for rural population groups which would be better served by non-formal education. Secondly, primary schooling focusses on the consumption — as distinct from the investment — dimension of education.

While the latter argument is rather primitive and does not justify extensive dialogue, the former argument is real. A policy which promotes non-formal education for rural population groups, while such groups demand an education similar to that provided for urban populations, raises equity problems of its own.

To what extent the "population message" can be better communicated by formal as distinct from non-formal education in addressing different population groups (e.g. the rural-urban migrant) is a question which the educational planner can help answer by providing different quantitative measures of distribution of educational services.

As box A/II indicates, the shape of the educational pyramid is certainly the most commonly recognized conceptual characteristic of the distribution of educational services per se.

In most Asian countries there is probably more consensus in favour of pyramids with relatively wide bases, because better access to basic education for all is certainly more equitable than better access to higher levels for few selected beneficiaries of basic education. A measure for the degree of equity of an educational pyramid could thus be the ratio of total actual enrolment in the pyramid to the hypothetical enrolment if all students were given an equal amount of education within the same total budget outlay. However, one observes that governments in quite a number of Asian countries have been giving in to the increased social demand for secondary and higher levels of education even to the extent that high levels of unemployment among educated persons are tolerated. Social demand criteria have, in such cases, certainly been stronger than efficiency criteria. The effect of such a *laissez-faire* policy on equity criteria has probably been negative in that financial resources have been diverted from providing basic education to all marginal population groups (the rural poor, the slum dwellers, etc.).

Measuring the effect of such alternative educational strategies on population dynamics is one of the primary responsibilities of the educational planner.

In boxes B/I and B/II, the discussion is focussed on things dependent on education like income, occupation, etc. While this "instrumental view" of education can be heard among the practitioners of the recently fashionable social-distributive-justice dialogue, one should not close one's eyes to research results which indicate that the connection between education and occupation/income is rather weak in most developing countries.

In box B/I, the provision of services for attaining universal literacy is given as one of the possible strategies within this category. In most Asian countries, literacy is thus defined as one of the minimum prerequisites for meaningful citizenship participation. Despite the "efficiency" critics who have disputed (non-functional) literacy projects because they doubt their ultimate "economic" benefits, provision for universal literacy receives a high priority among educational objectives in most countries of the region. In the more developed countries of Asia, the concept of a social minimum tends to be defined in terms of a floor minimum income (or poverty line). Basic educational preparation would thus be necessary for the poor to lift themselves out of poverty.

The above alternative interpretations of the potential contribution of education to the distribution of social justice has significant implications for the population dynamics dimension of educational planning, depending on whether reproductive behaviour is more positively related to citizenship participation or to income levels.

Finally, box B/II focusses on the relation of educational services to the income distribution as a whole. However, this relationship remains very unclear; recent research results from developed countries would indicate that the connection is only "partial" and not "significant" as was argued before.

This scepticism has led policy-makers to focus on more direct means of redistributing income (taxes, etc.) and on the distribution of educational services per se. Also in most Asian countries public policy has never seriously attempted to redistribute income through education (e.g., by differential fee systems for bearing the costs of education) and consequently little can be expected from the indirect effects of such a policy alternative on population dynamics.

We shall not go into a detailed discussion of indicators which can be utilized by the educational planner to measure the effects on population dynamics of the above alternative approaches to supplying education services. Such a discussion is provided elsewhere[1]. However, it is obvious that such approaches would be a combination of:

- increasing the *average* (e.g., of literacy, retention rate) for all population groups as much as possible;
- decreasing the *dispersion* (e.g., between educational opportunities for various population groups) as much as possible;
- decreasing the *correlation* (e.g., between education and class/sex/income/urbanization) as much as possible.

The development of innovative educational practices

In order to become effective, the above macro educational strategies have to be translated into micro innovative educational practices.

We can distinguish between 4 kinds of innovations:

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[1] cf. Roy A. Carr-Hill, A System of Educational Indicators with Specific Reference to Population Characteristics in Developing Countries. Paris, Unesco, 1973, mimeo.

- Innovations concerned with the objectives and functions of the school in its broader socio-economic context (e.g. educational reform; introduction of comprehensive schools);

- Innovations concerned with the organization and administration of the educational system (e.g., control/finance/decision-making, etc.);

- Innovations concerned with role-definitions and role relationships (e.g., student/teacher relationships, local/central authorities, etc.);

- Innovations concerned with curriculum, content, timetable, methods, evaluation, material and internal organization of instruction.

Usually an educational innovation is a combination of some of the above elements. Annex VIII provides a sample of innovative educational programmes and projects in Asia in which the innovative elements introduced can be easily distributed among the above four categories.

The impact of each different type of educational innovation on individual and family decision-making regarding population issues is likely to vary in both intensity and direction, and consequently its indirect effects on population dynamics will vary considerably. To give an example: the rural "Boys Town" programme in Sri Lanka may have "positive" population effects such as slowing down rural-urban migration, increasing age of marriage, introducing participation in education as well as in population programmes, etc. However, it may also generate "negative" population effects such as changing the role of women through decreased labour market participation, with its indirect effects on family size. An evaluation of such effects is an inter-disciplinary task, in which the role of the educational planner is to provide a qualitative and quantitative analysis of relationships between education and migration patterns, labour market participation, etc.

V. The potential role of international cooperation in the field of population dynamics and education

International cooperation in social development is suffering from a number of basic constraints which have often prevented cooperation in this field from becoming a meaningful instrument for assisting governments of the Third World attain social sector objectives. Cooperation in the fields of education and population is no exception. It is unfortunately still true that international cooperation for extra-economic goals has often received lip-service only and that social and cultural factors have often been considered part of the "means" for economic "ends."

The major constraints in the field of cooperation in education and population could be summarized as follows:

International cooperation has too often been a one way stream, from the materially rich to the materially poor. This, in spite of the awareness among both donors and recipients that progress in areas like population and education is very much a function of individual and socio-cultural values, which would make a dialogue a much more suitable instrument for cooperation (e.g., learning from the recent educational experiences in China).

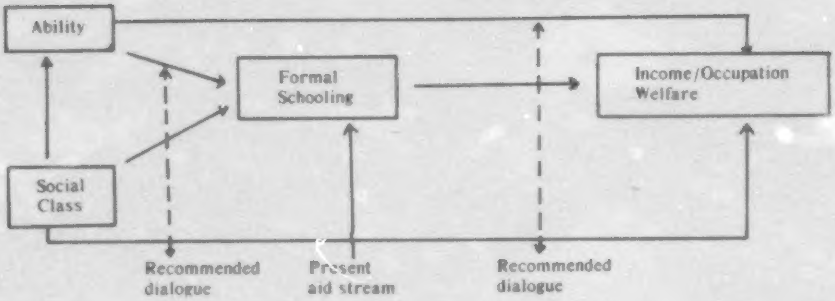
Aid streams in education and population have often been based on a misleading interpretation of reality by using rather meaningless indicators, concepts and institutional structures which have been developed by the rich.

International cooperation has mainly concentrated on formal schooling; only recently a gradual shift to non-formal education, often on an experimental basis, can be observed.

While there is a growing awareness of the need for an inter-disciplinary approach to educational and population development problems, e.g., through projects for integrated child development and education for rural development, in reality the social sciences have not yet been developed to the extent that research results can be translated into guidelines for channelling aid streams in such "inter-disciplinary" directions.

Resulting from the above, the major decision-making bodies in the field of development planning in the Asian region have, up till now, rarely been presented with balanced inter-disciplinary aid programmes for the social sectors, and consequently there is a tendency to continue aid to relatively traditional programmes in the fields of education and population.

To sum up, a graphical presentation of the actual situation may thus show the following picture:

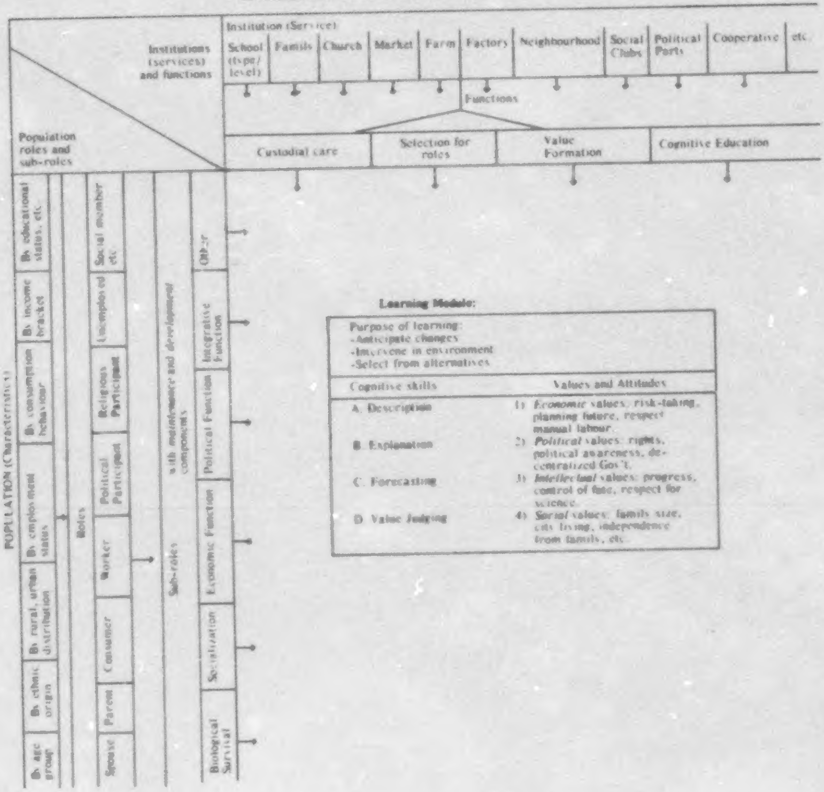


Occupation, income and welfare are influenced directly by social class and ability - which, in turn, is partly a function of social class - and indirectly by education. Aid streams directed only at formal schooling are not likely to substantially modify this pattern, in which education plays only a relatively modest role.

What is recommended is a gradual shift from aid to formal education towards a two-way stream (dialogue) directed also towards programmes which affect the child and adult before, during, and after the formal schooling process (illustrated by the dotted lines in the above diagram). Such programmes could be non-formal community education, child health care centres, comprehensive youth programmes, self-help movements, literacy programmes, training programmes for rural development, etc., (see Annex VIII for examples of such programmes which have been developed in the Asian region).

Aid giving agencies have a potentially significant role to play in supporting initiatives in these directions. Since the institutional base for such inter-disciplinary programmes is usually still rather weak, both at the central and local level, international cooperation in this field should take the form of risk-sharing in the implementation of experimental programmes

ANNEX 1. Grid I: Relating population characteristics, roles and sub-roles to educational services and functions.


Institutions (services) and functions
Population roles and sub-roles
Institution (Service)
School (type/ level)
Family
Church
Market
Farm
Factory
Neighbourhood
Social Clubs
Political Party
Cooperative
etc.
Functions
Custodial care
Selection for roles
Value Formation
Cognitive Education
POPULATION (Characteristics)
By age group
By ethnic origin
By rural, urban distribution
By employment status
By consumption behaviour
By income bracket
By educational status, etc.
Roles
Spouse
Parent
Consumer
Worker
Political Participant
Religious Participant
Unemployed
Social member etc.
Sub-roles
with maintenance and development components
Biological Survival
Socialization
Economic Function
Political Function
Integrative Function
Other

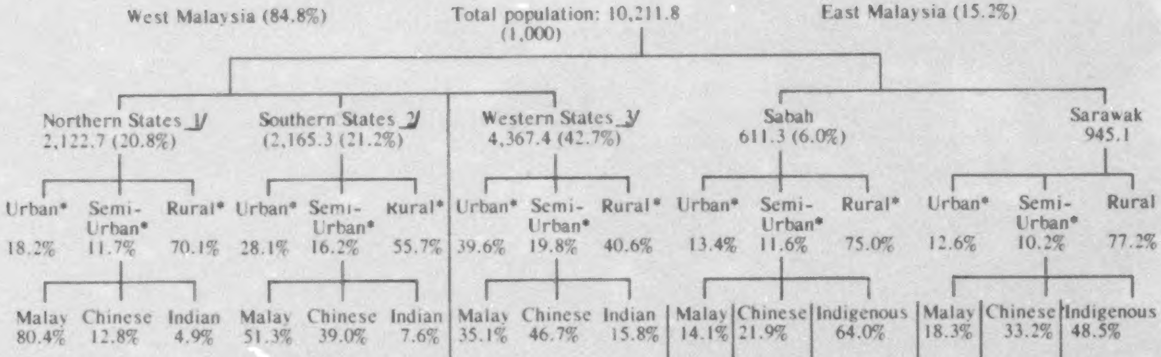
Learning Module:

Purpose of learning:
-Anticipate changes
-Intervene in environment
-Select from alternatives

Cognitive skills	Values and Attitudes
A. Description	1) *Economic* values: risk-taking, planning future, respect manual labour.
B. Explanation	2) *Political* values: rights, political awareness, decentralized Gov't.
C. Forecasting	3) *Intellectual* values: progress, control of fate, respect for science.
D. Value Judging	4) *Social* values: family size, city living, independence from family, etc.

ANNEX II.

Population profile of Malaysia (around 1968)


West Malaysia (84.8%)
Total population: 10,211.8 (1,000)
East Malaysia (15.2%)
Northern States 1/ 2,122.7 (20.8%)
Southern States 2/ (2,165.3 (21.2%)
Western States 3/ 4,367.4 (42.7%)
Sabah 611.3 (6.0%)
Sarawak 945.1
Urban* 18.2%
Semi-Urban* 11.7%
Rural* 70.1%
Urban* 28.1%
Semi-Urban* 16.2%
Rural* 55.7%
Urban* 39.6%
Semi-Urban* 19.8%
Rural* 40.6%
Urban* 13.4%
Semi-Urban* 11.6%
Rural* 75.0%
Urban* 12.6%
Semi-Urban* 10.2%
Rural 77.2%
Malay 80.4%
Chinese 12.8%
Indian 4.9%
Malay 51.3%
Chinese 39.0%
Indian 7.6%
Malay 35.1%
Chinese 46.7%
Indian 15.8%
Malay 14.1%
Chinese 21.9%
Indigenous 64.0%
Malay 18.3%
Chinese 33.2%
Indigenous 48.5%

	Malay (50.3)	Chinese (36.5)	Indian (11.1)	Malay 14.1%	Chinese 21.9%	Indigenous 64.0%	Malay 18.3%	Chinese 33.2%	Indigenous 48.5%
Annual rate of natural increase (p. 1,000)	29.8	26.2	27.0	n.a.	26.4	35.4	31.0	28.9	20.1
Urbanization ratio	17.6	51.8	35.1	n.a.	41.1	2.5	n.a.	38.6	2.3
% employed in agriculture	33.7	10.4	1.7	76.7	39.5	92.0	70.7	51.1	93.3
% employed with no formal education	33.3	18.4	25.3)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
% unpaid family workers	20.4	12.0	1.7)						
% labour force unemployed (active and passive)	8.8	8.0	12.3)						
Infant mortality (p. 1,000 life birth)	53.0	30.0	52.0	n.a.	19.0	42.0	n.a.	20.0	28.0

1/ Trenggano, Kelantan, Perlis, Kedah.
2/ Pahang, Johore, Malacca.
3/ N. Sembilan, Perak, Selangor, Penang.

* Urban = 10,000 or more.
Semi-Urban = 1,000 - 10,000
Rural = less than 1,000

ANNEX III. Grid II: relating roles to potential educational services

Role	Potential Educational Services											
	School	Family	Church	Market	Farm	Factory	Neighbourhood	Recreation	Police	Courts	Political Party	Social Club
Spouse												
Parents												
Child of Aging Parents												
Worker												
Consumer												
Aesthetic Participant												
Religious Participant												
Social Member												
Political Participant												
etc.												

ANNEX IV. Grid III: relating potential educational services to "educational" functions

Functions of Educational Services	Potential Educational Services												
	Elem. school	Sec. school	Voc. school	Univ.	Family	Church	Factory	Market	Farm	Recreation	Police	Courts	Political Party
Custodial Care													
Selection for roles													
Value formation													
Cognitive education (Code Systems)													

ANNEX IV. Grid III: relating potential educational services to “educational” functions

s tional s	Potential Educational Services													
	Elem. school	Sec. school	Voc. school	Univ.	Family	Church	Factory	Market	Farm	Recreation	Police	Courts	Political Party	Social clubs
al														
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ve on ystems)														

ANNEX V. Educational module: the cognitive skill component

I. For what purposes do we educate? (1) to assist people to anticipate changes that will occur, (2) to improve people's capacity to intervene in the environment to bring about changes in the environment and (3) to make it possible for people to express preferences from among alternatives.

II. Cognitive skill allows people to perform in all three goal areas.

III. What is cognitive skill or cognition?
   A. Description
   B. Explanation
   C. Forecasting
   D. Value Judging

IV. In order to perform well in these skills what sub-skills are necessary?

   A. Temporal relations - The ability to differentiate changes over time.

   B. Patterning skills
      1. Patterns and sets which may change.
      2. Multi-factorial patterning.
      3. Roundabout or indirect patterning.
      4. Catalytic relationships.
      5. Simplification of patterns.
      6. Complication of patterns.

   C. Analysis
      1. Breaking concepts into elements.
      2. Making concrete illustrations of abstract rules.
      3. Establishing common denominators.
      4. Detecting exception to rule.
      5. Applying particular rules to new situations.

   D. Calculating
      1. Projecting implications and identifying *non-sequiturs*.
      2. Avoiding fallacies.

   E. Handling counterfactuals; answering the question:
      "If X had been different, how would Y be different?"

   F. Experimenting
      1. Handle incompatibility of factors in a situation.
      2. Respond to non-appearance of expected phenomenon.

   G. Knowing, understanding and accepting value judgments inherent in attempted interventions in the environment.

   H. Reasoned judgments
      1. Awareness of costs.
      2. Use of standards that compare variables.
      3. Calculation of forced conclusions from known standards.

ANNEX VI. Indicators of modernization attitudes

Inkeles	Smith & Inkeles	Peshkin & Cohen	Doob	Kahl
1. "faith in science and technology"	1. belief in science and medicine	A. Economic values -risk taking -planning for future -respect manual labour	1. oriented to future	1. people control their destiny
2. man can control his environment.	2. man can control his fate.	B. Political values -rights of all people -political awareness -decentralized government	2. government has functions to perform for its citizens	2. independence from family ties
3. openness to change and new experience	3. openness to ideas and practices	C. Intellectual values -idea of progress -man controls his fate -respect for science	3. life is generally pleasant; people control their destiny.	3. preference for city life
4. rewards according to contribution	4. rewards according to contribution	D. Social values -independence from family -small family size -evaluate others by their performance -preference for city living	4. patriotism	4. independence from close workmate ties
5. opinions on many issues and awareness of diversity	5. active in civic affairs		5. scientific viewpoint	5. common man can influence government policies
6. dignity of others	6. openness to new people		6. people are trustworthy and generous	6. high use of mass-media
7. oriented to present or future, fixed hours, punctual.	7. high educational aspiration		7. approve government leaders and policies	7. individual can raise his status in society.
8. oriented to planning	8. belief in birth control		8. discredit traditional values and practices	
9. people and institutions are reliable and calculable	9. interest in mass media			
	10. secular (vs. religious)			

Sources:

Inkeles, Alex, "The Modernization of Man", in M. Weiner, (ed.), *Modernization: The Dynamics of Growth*, N.Y.: Basic Books, 1966, pp. 138-150.

David Smith and Alex Inkeles, "The OM Scale: A Comparative Socio-Psychological Measure of Individual Modernity". *Sociometry*, 24, No. 4 (Dec. 1966), 353-77

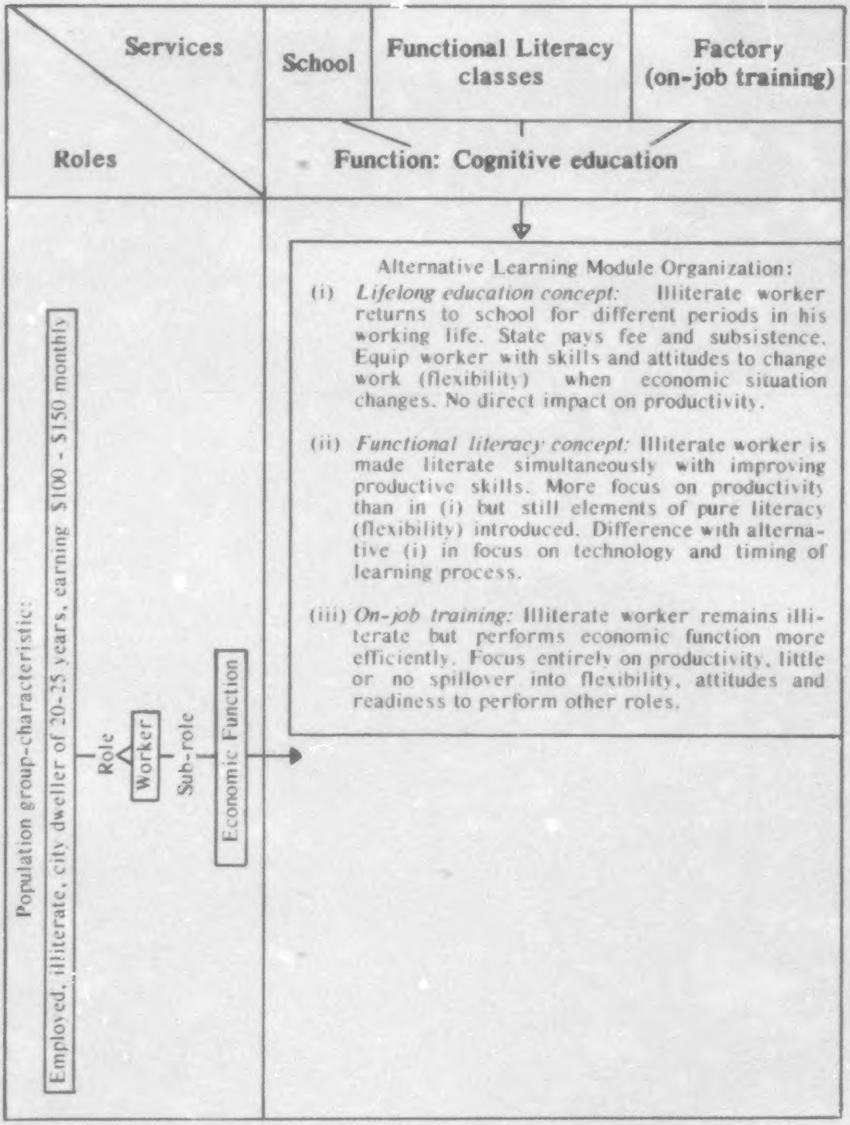
Don Peshkin and Ronald Cohen, "The Values of Modernization", in *The Journal of Developing Areas*, 2 (Oct. 1967), pp. 7-22

Leonard W. Doob, "Scales for Assaying Psychological Modernization in Africa", in *Public Opinion Quarterly* (Fall 1967), pp. 414-21

Joseph Kahl, "*The Measurement of Modernism*", Austin, Texas, Univ. of Texas Press, 1968.

ANNEX VII.

Grid IV: Example of Grid I, focusing on a specific population characteristic/role related to one specific educational function.


Services
Roles
School
Functional Literacy classes
Factory (on-job training)
Function: Cognitive education
Population group-characteristic:
Employed, illiterate, city dweller of 20-25 years, earning $100 - $150 monthly
Role
Worker
Sub-role
Economic Function

Alternative Learning Module Organization:

(i) *Lifelong education concept:* Illiterate worker returns to school for different periods in his working life. State pays fee and subsistence. Equip worker with skills and attitudes to change work (flexibility) when economic situation changes. No direct impact on productivity.

(ii) *Functional literacy concept:* Illiterate worker is made literate simultaneously with improving productive skills. More focus on productivity than in (i) but still elements of pure literacy (flexibility) introduced. Difference with alternative (i) in focus on technology and timing of learning process.

(iii) *On-job training:* Illiterate worker remains illiterate but performs economic function more efficiently. Focus entirely on productivity, little or no spillover into flexibility, attitudes and readiness to perform other roles.

ANNEX VIII .

Examples of innovative educational strategies and projects in Asia aimed at specific population groups*

1. China — Education as part of a rural development strategy

Of particular interest in China's recent educational efforts are (a) the breaking of the old and rigid mould of the formal educational system, (b) the decentralisation of control and financing of lower levels of education and the use of the commune as an instrument for achieving widespread first-level education, (c) the reliance on mass media (radio, low-cost printed materials, posters, etc.) for educational purposes, including literacy training and skill training for rural development, (d) the extensive and versatile use of army personnel in civilian education, and (e) the synthesising of formal and non-formal educational elements in new institutions and programmes (e.g., the agricultural middle school and the cadre schools for in-service education).

2. Indonesia — A comprehensive locally initiated youth programme

This multifaceted youth programme in Jombang, East Java, conceived and managed locally, serves a wide range of learning needs of boys and girls (under age 20) through practical activities in agriculture, retailing, cottage industry, rice-processing, rural manufacturing and repairs, home-making, health and cultural affairs. It also provides remedial work in primary school subjects and cash-paying work opportunities. The programme demonstrates how a community can mobilise personnel and resources available at the local level—including, for example, schools, co-operatives, scouts, field agents of national ministries, a teacher training institution, etc.—for a dynamic programme that serves youth and local development. The costs are comparatively low and the programme is partly self-supporting.

3. Republic of Korea — Training for agriculture

The Republic of Korea has an unusually large-scale, highly developed 4-H type programme (an integral component of the national programme for rural development) which includes extensive training facilities,

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*Taken from "Non-formal Education for Rural Development: Strengthening Learning Opportunities for Children and Youth". Interim report prepared by the International Council for Educational Development.
ECOSOC, 8 February 1973, pages 55 - 60.

particularly for farm machinery and repairs, and makes wide use of trained local volunteer leaders. The young farmers' movement has a reported total membership of over 600,000 enrolled in about 30,000 clubs. Besides training at special centres the programme includes individual and group projects, apprenticeships under progressive farmers, specialized farm training and various community assistance projects.

4. Malaysia — Co-ordinating youth activities

Efforts are being made in Malaysia, especially through the Ministry of Youth, Culture, and Sports, to strengthen and co-ordinate various out-of-school educational opportunities for youth, and to give youth a voice in the shaping of such programmes and broader opportunities to participate in national development.

Included are various youth organizations (e.g., the Malaysia Association of Youth Clubs and 4-B clubs), local training courses (for leadership and skill training) and pilot employment-generation projects. The ministry works with two representative youth councils (the Malaysian Council of Youth and the National Consultative Council on Youth) to elicit young people's opinions and suggestions regarding government policies and programmes.

5. Sri Lanka — A voluntary self-help movement

Sarvodaya Shramadana, a community development/self-help movement, inspired by Buddhist philosophy, is aimed at uplifting the most deprived rural communities. The programme contains significant educational components and extends to about 380 villages. The typical procedure is to organize a work camp in a prospective village where a number of *Sarvodaya's* young, idealistic volunteers work with willing villagers for several weeks on a much needed construction project. This opportunity is used to instill among villagers the idea of organizing for self-improvement. Specific self-help projects are developed and the *Sarvodaya* tries to guide the villagers' activities through its full- and part-time volunteers who have skills, knowledge or experience to offer.

6. Sri Lanka — A residential vocational training programme for rural youth

A residential, multipurpose and largely self-supporting rural "Boys Town" programme in Sri Lanka combines basic general education and training in agricultural and practical skills for employment and self-employment with the development of self-reliance and leadership abilities. Adolescent boys are given practical training in producing all the major crops that Sri Lanka's year-round growing season and fertile land permit, and in the common mechanical and trade skills that an enterprising villager should know — carpentry, basic metal work, house construction, electric wiring, repairing generators and motors, etc. Important questions here are whether and how the principles and methods of this successful small-scale programme might be applied on a broader scale.

7. Thailand — A large-scale school equivalency programme

This "second chance" programme in Thailand — under the Ministry of Education — enables out-of-school adolescents (boys and girls) with four years of primary schooling to complete the equivalent of the next three primary grades and three grades at the secondary level and obtain an official school certificate in less than half the time and at a fraction of the cost of regular schools.

8. Thailand — An innovative approach to functional literacy

This unusual and highly promising functional literacy experiment sponsored by the Ministry of Education is open to adolescents and adults of both sexes. It teaches literacy through a reexamination of traditional local concepts and practices regarding agriculture, nutrition, health, etc., and by improving or correcting these concepts with scientific information. Initial evidence suggests that this programme — supplemented by village newspaper reading centres — is effective in motivating and sustaining the interest of the rural population in literacy.

9. Thailand — Skill training for out-of-school youth

The Mobile Trade Training Schools programme operated by the Ministry of Education is a relatively large, innovative and comparatively low-cost effort to provide a variety of useful non-farm occupational and homemaking skills for rural and small-town adolescent boys and girls. It is directed mainly to primary-school-leavers who do not continue in formal education.

Approaches to educational planning in a population and societal context

I. Introductory remarks

The purpose of this paper is to explore some ideas about how educational planning can be undertaken within a population and societal context without too many political conclusions implicit in the approach, or at least with a somewhat more explicit exposure of such conclusions.

I shall not, in this context, apply any rigid definition of the planning function, or the role of the planner. Whatever definition we apply, it appears that planning will to some extent be concerned with the following three elements of work : description of factual situations, indications of desirable policy directions, and development of appropriate strategies. The following comments will deal with those elements separately, though they should hardly be seen as "stages" in a planning process. In practice, they are fundamentally interdependent, and this is in all likelihood the way it has to be.

Traditional planning theory attempts to present the first and the last of these elements, data gathering and programming, as the typically professional elements of the planning process, while the establishment of policy directions is regarded as the political element in the process. My thesis will be that all these planning elements are highly political. Both the selection and structuring of data and the development of strategies imply political choices, which may be far more decisive for the final outcome than the often more formal goal-setting operations. I am interested in exploring how this happens in current planning practices and how this influences the outcome of such activities.

The following analysis is, of necessity, sketchy. I have to confine myself to a few examples, and to a few comments on each of them. It appears to me, however, that a more exhaustive study of such issues would be highly rewarding, and also useful in illuminating what planning today really is.

II. Approaches to descriptions of reality

It goes without saying that reality can be described in an endless number of ways, none of which are exhaustive. We can only take a hasty

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by Kjell Eide, Educational planning specialist, Oslo, Norway.

look at some of those most frequently used in a planning context.

Data on economic *transactions* and the consequent *distribution of economic resources* are collected and structured within the framework of national accounting. Bearing in mind that conventional definitions of "economic goods" are rather limited, such data are still very significant, also because the distribution of economic resources is highly correlated with the distribution of resources in a much wider sense. Yet, essential aspects of stated policies escape the analytical framework provided by national account data. Even when supplemented by detailed descriptions of productive functions and jobs, the relationships of such data to educational activities are rather dubious.

The development of *social indicators* represents a more comprehensive attempt to provide information on the situation of individuals on many dimensions. Such measures attempt to indicate the distribution among individuals of resources in the widest possible sense, including knowledge and insight, health, working conditions, social activities, "status", access to power, etc. Yet, the selection of such welfare criteria is based upon what "we" think is important. It reflects the value structure and the performance standards of predominant power-groups in society. As in the case of national accounting, we may even end up with international standards reflecting predominant power-groups at a global level.

Another approach, less frequently used on a major scale, is the mapping of *societal institutions*, the roles performed by them, the extent to which their services are being used, and by whom. The advantage of such data is that they link roles performed to their institutional setting, which adds new, potentially operational variables to those brought out by national accounting and social indicators. The concept of institutional roles or functions is difficult, however, and both inter-institutional and inter-personal relationships tend to escape the analysis.

Demographic accounting represents an open-ended approach, in the sense that there is no limit to the number of characteristics of individuals and individuals' situations which can be brought into the analysis. Traditional demography has concentrated on variables related to the reproduction of populations, but geographic, occupational and social data have increasingly been brought into the framework of demographic data gathering.

In principle, one could imagine an extension of the type of stock/flow-matrices which have been developed for education and the economy (cf. the Stone-model). Individuals at any age might be classified not only according to their location within an educational system or within the economy, but also according to geographic location, sex, family-situation, non-work roles, religious and cultural affiliations, social groupings, etc. Transfers between groupings according to such classifications can be mapped, and individual characteristics may be recorded and used as explanatory variables in relation to such transfers.

Studies may be undertaken in order to describe more accurately the implications for individuals of being located in any one of the "boxes" in such a multi-dimensional matrix, thus providing a basis for judgements about the desirability of such locations and possible transfers.

Even in this case, the selection of dimensions for such a matrix can only be based upon political choice. There is no guarantee that dimensions essential to individuals will not escape the grid, and that elitist conceptions of what ought to be the interest of others will not predominate such a selection.

Approaches with somewhat similar aims, are *time-budgeting* and *event studies.* In the first case a comprehensive recording is made of how individuals with different characteristics spend their time. The latter approach concentrates on recording a maximum number of "events" occuring in a specific community, an "event" often being defined as something which happens when two or more people meet.

In both cases, the emphasis is on comprehensiveness. Yet, many things happen to individuals at the same time, and the researcher will have to select the specific feature of a particular form of time utilization which he finds most significant. Correspondingly, lots of things may happen to individuals which escape operational definitions of "events" from the researchers' point of view.

In addition, the attempt to be comprehensive in such studies has frequently limited them to rather small samples of individuals. When used on a larger scale, substantial simplifications are needed. The outcome then resembles more the kind of data emerging from extended demographic matrices, and the selection problems are of a similar nature. We may still have gained something in terms of closeness to individual situations, but time utilization data and event studies offer little in terms of explanatory variables.

Event studies may conceivably throw some light on the nature of human interactions. Other, more macro-oriented studies of this phenomenon concentrate on descriptions of power structures and decision-making processes. In principle, such studies could be extended to cover also typical forms of interactions at the individual level. In education, this would mean interactions between pupils, between pupils and teachers, and between teachers.

Descriptions of this kind are beset with difficulties stemming from the elusive nature of the concept of power. Even within a strictly hierarchical decision-making structure, there is genuine bargaining going on at different levels. If we try to describe such interactions as transactions, our judgement of the relative gains for the parties involved will depend upon the scale of measure we adopt. Such a scale may not correspond to the scales relevant to any of the parties involved.

We are here in the middle of the complexities connected with the use of such phrases as "exploitation" and "imperialism." There is hardly any "objective" way of describing the extent to which such phenomena occur. Even the individual's range of choice may only be a formal criterion in this context.

Yet, studies of this kind appear to come close to some essential dimensions of human conditions, which tend to escape most of the other approaches described above. In principle, it should be possible to attach some descriptors concerning the nature of human interactions to both a system of social indicators and to the "boxes" in a demographic accounting system. As far as I know, there have been few serious attempts to do this, and we may have to regard studies of human interactions in the framework of broader decision-making structures as a separate approach to descriptions of human conditions.

Common to all these approaches to the gathering of data concerning human conditions is the basically political choice involved in selecting "relevant" data. Even the most general "programme of statistics", e.g. those offered by international organizations, involve such choices.

It should be noted in this context, that the frequently applied distinction between "quantitative" and "qualitative" aspects is mainly a convention. Largely, such distinctions reflect previous priorities in terms of development of measures and actual data gathering. We have usually been able to quantify what we have found important enough to be concerned with. The "quantification bias" is mainly a reflection of previous political choices.

The actual selection of data in descriptive approaches such as those mentioned above, is usually decided by pre-determined systems of data structuring. They emerge from established "planning techniques", or simply from conventional research approaches developed within the different academic disciplines. The political choices have already been built into such preconceived thinking models of a "methodological" or "professional" nature.

The various conventional forms of data structuring have usually specific political connotations, and will be discussed in the next section of this paper. The only conclusion we will draw at this stage, is that the basic data gathering element in a planning process is of fundamental political importance. The picture of reality we start from, is decisive for the outcome of any planning analysis, and for decisions derived from such an analysis. But the picture of reality which we produce is not in any way arbitrary. It is, consciously or unconsciously, a reflection of the kind of political outcomes which they are likely to yield.

III. Transformations from facts to policy directions

Frequently, descriptions of human conditions appear immediately to point out some policy direction. Few would disagree to suggestions that people ought to be wealthier and healthier. Problems arise, however, about the distribution of such benefits between different groups, and about priorities to be attached to different benefits.

To a considerable extent, priority decisions of this kind are left to professional personnel operating in various fields. Each profession has, in fact, established sets of norms regulating such decisions, providing individual practitioners with the necessary professional authority when such decisions are made.

Among *economists* the maxim of profit maximation has gradually been replaced by the one of GNP-maximation. Such one-dimensional objectives provide a basis for conclusions about "optimal" conditions within a subsystem or in society as a whole. Even when the range of objectives is widened, however, economists maintain their trust in market prices as an "objective" measure of value. Without this axiomatic assumption the whole theoretical framework providing economists with their analytical tools breaks down. There would then be no "objective" information to be drawn from rate-of-return analysis or cost-benefit analysis based on actual and shadow prices.

The concept of demand is often frequently used by economists as a guide to policy directions. As factors determining human needs fall mainly outside the set of variables dealt with by economists, their usual technique is limited to various forms of trend prolongations[1]. Such trend prolongations may even be used as a normative basis for long-term allocations of public resources, as well as more specifically for predicting inflow into educational systems. It is interesting to note that sociologists, being far more aware of the lack of autonomy of "demand" in relation to public policies, have rarely contributed to normative conclusions based on "social demand."

The *medical professions* have long since developed their normative concept of health which, like the GNP, has acquired its international definition. While such a professional health concept is still largely accepted as "objective" in casuistic practice, it is increasingly challenged in the field of social medicine. The increasing realization of the importance of psychosomatic problems also brings out the narrowness of the factor-set included in medical thinking models.

Psychologists have never quite succeeded in establishing a similar concept of "mental health", though not for lack of trying. Elements of this are discernible, however, in Piagetan psychology, and in child development theories. The idea of a "normal" form of personal development is an active force in psychological and educational thinking, providing a basis for apparently professional normative decisions.

Approaches with similar aims are found in the establishment of "taxonomies" and "hierarchies of human needs", through which policy directions can be derived from descriptive data. The application of ideas from Bloom and Maslow are illustrative example of this.

Another approach among *educationalists* is the well established form of "curriculum development", more recently emerging as a scientific discipline in itself. Various implicit value-assumptions are applied in this context, from assumptions about the existence of an inherent logic in the different scientific subjects, to equally obscure adaptability norms, human development ideologies or feedback directed programmed instruction. Major studies are undertaken on the assumption that one can establish a scale of educational performance common to all nations, and plans exist to export curriculum work based on such assumptions on a wholesale basis to developing countries.

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[1] It may be interesting to note that the axiomatic basis of the demand theory even in current economic theory was established by the classical Austrian economists, who got it from the speculative psychology of Wilhelm Wundt. His 100 year old psychological theories on human needs have, of course, long since been abandoned by psychologists.

More extensive "assessments of needs" are undertaken by *sociologists,* trying to measure preference scales predominant in various sectors of society. As individual preferences will always be the function of conceived alternatives, such needs assessments offer wide possibilities for interpretations. This is also true for attempts at "participatory planning" based on the participation in goal formulation of a maximum number of individuals. The logical extension of such activities, the use of extensive Gallup polls, suffers, of course, from the same limitations and dubious validity.

Sociologists have never succeeded in establishing a "deus ex machina" in the form of "the sociological man."[1] Yet, the concept of institutional and individual roles offers the possibility of defining a set of "balance" criteria. Adding the condition of minimizing conflict, one is again provided with a mechanism whereby "professional" political answers can be obtained.

Studies of power-structures and interest group interplay by *social scientists* offer similar possibilities. The tendency to use balance criteria as a normative indicator is also present in many studies of this nature.[2]

Such concepts as "non-exploitation" or "non-imperialism" are clearly normative, though widely accepted as inherently good. Yet, such concepts can only be maintained as inherently good as long as their meaning is subjective, based on the value-structure of the individual using them. The moment conventional definitions of inter-personal validity are established, the concepts loose their characteristic of being good per se.[3] Yet, various expert groups are keenly competing for the right to define such concepts on the strength of their professional authority.

The fight between professional groups for the right to provide the authorized definitions of basically normative concepts is a typical phenomenon in the process of transforming facts into policy directions. An illustration of the form such competition may take is provided by current tendencies in the formulation of policy goals. Quite frequently, official goal statements for an operational activity include as a separate objective "the efficient utilization of resources" for the achievement of other stated goals. Apparently, this is quite redundant, since a commitment to other objectives logically implies their maximum achievement with available resources. The hidden meaning of this additional element of the goal formulation is, however, real enough. It offers a lever by which assumed experts on "efficiency" can apply their own notions of objectives, built into their efficiency concepts, as a basis for steering the activity. The resulting over-determination of the decision-making model is frequently solved by the objectives, as seen by operative units, having to yield. This is especially the case when efficiency judgements are linked to resource allocation functions.

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[1] Ralf Dahrendorf once tried.

[2] It is interesting to note the occurrence of similar phenomena in emerging ecological ideologies, in which strong normative assumptions are built into concepts of "balance".

[3] They share this fate with several other normative concepts, such as "efficiency", "peace", "non-violence", "progress", etc.

The result is fairly regularly a shift in power from operational agencies to agencies responsible for budgeting and efficiency control, which usually means a superior position for the professional authority of the economists.

The fight between professions for the right to define objectives takes somewhat similar forms on the border-line between medicine and psychology, between technologists, economists and anthropologists, etc. An essential dimension of political choice is, in fact, the official recognition that various forms of expertise are relevant to problems of political importance. Some of the difficulties encountered in developing countries in spreading Western values are clearly due to the lack of corresponding professional groups in those countries, and many forms of "technical assistance" may be viewed in this light.

Built-in value assumptions also develop within institutions and various sub-systems in society, frequently related to predominant professional groups, but not always corresponding to the latter. Public administration, school systems, universities, social care systems, enterprise systems, develop their own internal value structures. As for the professions, societal dynamics tends to destroy established patterns of division of labour, and institutional competition for recognized authority is well known and apparently increasing. Again, the granting of such institutional authority is an important dimension of policy-making.

The development of techniques for providing "objective" policy directions is not limited to professions and institutions alone. There exists a series of *"generalist approaches"*, often developed by groups striving to obtain their own professional status. "Systems analysts", "evaluators", "budget specialists", "planners", "future researchers" are varieties of this brand.

The idea that one can develop a common welfare indicator based on a set of social indicators is an illustration of the techniques used. Various forms of cost-benefit analysis and "accountability" based on pre-stated objectives belong to the same family. One may also count programme budgeting approaches, with their insistence upon attributing one-dimensional objectives to each activity, and the resulting shift of power towards efficiency control expertise.

All these approaches accept, at least in principle, that some explicit *input of political values* is necessary. There is, however, very little evidence that such inputs are really forthcoming, in a way which permits an effective political steering. The lack of realism in the assumption that pre-stated operational goals are an input into optimation processes may be illustrated simply by stating what is involved:

In a multi-purpose process, politicians are expected to state the objectives of the operations in measurable terms. In addition, they will have to provide specific value weights for each of the objectives (normal priority statements are inoperational in this context). In a realistic case, however, value weights are a function not only of the actual level of achievement of the objective in question, but also of the level of achievement of other competing objectives. Furthermore, objectives are not only competing for resources, they are frequently inter-related in a "technical" sense, being complementary or alternative.

But this is not all. A responsible politician cannot only be concerned with the achievement of stated objectives. He must also, in fact, take into account other actual outcomes of the operation in question, and provide proper evaluations of such outcomes. Furthermore, he is faced with the reality that in most operations political importance cannot only be attached to the final "products" of the activity. Values will also have to be attached to various possible forms of the process itself.

If a politician were able to provide all these inputs into a planning process, the likelihood is that we would end up with an over-determined system, which in principle cannot be programmed. The realistic assumption, however, is that no politician can conceivably fulfil such requirements, leaving in fact essential decisions to the professional expertise constructing the decision-making model.

It still remains to comment upon the use of *future research* as a means of finding "professional" answers to political questions. The simplistic approach to this consists of more or less sophisticated *extrapolations of current trends,* in which the implicit political choice lies in the selection of assumed "autonomous" variables for projection.

A somewhat more complex technique is the *forecasting of technological developments.* When the assumption is added that such developments determine more or less strictly other features of society, a picture of the future is provided to which politicians can only find the best way to accommodate. A variation of this approach is the establishment of a *societal typology,* based on the assumption that "development" is an approximatively linear process, leading all nations through the same historical phases.

Even more intricate alternatives are provided by the application of *delphi-techniques,* bringing out possibilities for consensus among expert elite-groups. Somewhat similar effects are obtained through *cross matrix studies of events,* establishing "likely" futures as a consequence of imputed probabilities for event correlation, as estimated by "experts". *Forecasting "value dynamics"* is another version of the same nature, removing the static aspect of needs assessment techniques, and offering at the same time even more freedom for expert interpretation of the findings.

The writing of *"scenarios"* more explicitly offers choices between different feasible futures. Built into all forms of scenario-writing, however, are specific notions about the inter-relationship between phenomena and about incompatibility between phenomena belonging to different scenarios. A specific vision of how society operates is needed to write scenarios of this kind, if they are supposed to offer real alternatives. In addition, no choice can disregard the aspect of feasibility, which again requires the normative judgement of the experts involved in the exercise. There are strong reasons to ask what is left for choice based on explicit political premises.

Structuring of data is needed if they are to have a meaningful use at all. We just have to realize that most of the established patterns of data structuring have strong built-in elements of preconceived conclusions. They stem from the selection of variables judged to be relevant, and from hidden value assumptions built into the thinking models offered as a basis for decisions. The fact that such value elements are fairly predictable if we know the type of expert or the type of institution charged with the structuring of data, indicates that such value biases are far from arbitrary. They stem from group interests internalized by those who undertake the analysis.

This possibility of *predictable value biases,* however, may also, when clearly recognized, offer politicians a widened range of choice. If expert groups are not too firmly rooted in the institutionalised political structure of a society, politicians can to some extent choose expertise according to their value preferences, or they can create confrontations between groups or institutions with different value structures, and thus neutralize at least some of the value biases. This may, in fact, offer more of a leeway for political decisions than any of the alternative options for policitical action offered by specific expert groups.

Yet, as long as professional or institutional authority is largely accepted by most people, the options left to politicians may still be rather limited. If those formally responsible for political decisions are to make this responsibility real, it will require a fairly general understanding of the extent to which professional and institutional groups actually undertake the transformation of facts into policy directions, and the ways in which this is done. With public opinions strongly influenced by exactly those groups whose power would be threatened by such a development, attempts to strengthen decision-making on explicit political premises will certainly involve a fair amount of up-hill work.

IV. Choice of strategies

In current planning theory it is frequently assumed that when general policy directions are given, the development of an appropriate implementation strategy is primarily a task for planners and other experts. The implicit assumption here is that a set of predetermined goals is expressed in terms of "products" of a system, while the way in which such goals are achieved is "neutral" in relation to such goals. Furthermore, if the system should produce other outcomes than those related to pre-stated goals they, too, are without political relevance.

It is extremely unlikely that such conditions will be found in political operations of any significance. In a complex operation such as education, what we regard as means in relation to general policy objectives cannot be judged per se. Quite irrespective of their impact on pre-stated goals, our choice of means has far-reaching political implications, if we do not close our eyes to the fact that even children and young people are human beings, spending a considerable part of their life within the walls of educational institutions.

Our knowledge of the actual consequences of what we do in schools is scarce. Yet, it is easy to show that even well-established consequences escape most official formulations of educational objectives, especially consequences of a less desirable nature. Neither the formal nor the actual responsibility of politicians does, however, permit them to neglect such consequences, and any strategy for implementation based solely on prestated objectives is, therefore, bound to be inappropriate.

The fact that *process qualities and unspecified consequences* are politically important, has interesting effects. It makes the experience of those directly involved in the process, in education primarily pupils and students, but also teachers, very relevant for making policy decisions. Such experiences can be claimed to be as relevant as the expert knowledge of those running and programming the systems. This means, therefore, that the undisputed authority of systems experts is severely threatened. Decisions cannot only be made centrally on the basis of information and strategies developed by expert groups; those directly involved should have a say in such decisions. This may be an important reason why planners, curriculum developers, and school administrators find it so difficult to recognize the political importance of those process qualities and outcomes not specified in goal statements.

Strategies can take all sorts of forms, and there is hardly any basis for suggesting a more rigid *typology of strategies.* However, it might be possible to group strategies according to some essential features, bearing in mind that the grouping will depend upon what features are thought essential, and that extensive overlap is conceivable.

Strategies may aim at *maximum consistency and predictability* within a system. This presupposes a set of operational goals according to which behaviour within the system can be programmed. Only decisions supposed to be "neutral" in relation to the stated goals are left to the lower levels of a hierarchical system of organization. Those being served by the system are external to it, those involved are tools or raw material in a production process which accords to external product specifications. Adaptation to new circumstances can only come through changes at the top of the decision-making hierarchy, either through new information or new central policy direction.

Another cluster of strategies rely heavily on *"professionalization".* In principle, the assumption may be that wide areas of decisions are "neutral" in relation to the general objectives of the system, and can thus be left to experts who know best how such objectives can be achieved. In practice, for reasons discussed above, such strategies may easily be limited to the establishment of an institutional framework within which selective professional groups operate according to their specific value structures. The political choice will mainly be in terms of what expert groups to use. Should one mainly trust ordinary teachers, or develop a set of "super-teachers" directing the functions of inferior teacher categories? Should one rely upon external research-based programmers and developers, possibly rooted in specific disciplines of one's choice or should one accept the predominance of expertise in general techniques of efficiency control? Whatever the answer, the implication is that any group involved in the system, experts or non-experts, will have to accept performance standards set by others.

An alternative, however, may be to let different professional groups control different parts of the system, or different functions within it, accepting the ensuing lack of consistency in the functioning of the system as a whole. An example of the latter would be a primary school system dominated by child-development-oriented classroom teachers, a secondary school system dominated by discipline-based, research-oriented subject teachers, a vocational school system dominated by problem-oriented, industry-based technical experts, and with separate, non-integrated agencies for "school psychology", school building, audio visual media, etc.

A third group of strategic approaches may be termed *"market strategies"*. One extreme version is found in cases of "performance contracting" and some of the ideas about voucher systems. The more general principle of such strategies is to offer education as a service to those interest groups which dominate current society, and facilitate their maximum control over the education system. Whether this happens through more traditional market transactions, or through more sophisticated forms of influence is not decisive in this context.

School-community integration may be one version of such strategies, provided that policies in this respect are not selective. Then strength or weaknesses in the local community will be reflected in the school, and in the life chances of those attending it.[1] Yet, even in this case educational policy cannot quite escape at least implicit choices about which of several competing interest groups will gain control. Even the so-called "free competition" has its rules of the game, which in fact largely determine the outcome. Challenges to set rules from groups striving for more access to power, will normally call for policy measures to restore "law and order."

Another set of strategies might be characterized by *flexible use of policy instruments.* An important distinction between legal, financial and informative instruments of policy stems from the degree of rigidity by which they attempt to control behaviour within the system. It should be noted, however, that this degree of rigidity does not necessarily correlate well with the extent to which such instruments succeed in influencing behaviour. Yet, the range of discretion at various levels within the system is determined by the instrument mix.

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[1] School-community integration as part of a deliberate effort to raise the status of certain communities may be part of strategies with quite different implications.

Moving towards an extensive use of informational instruments, and rather restricted use of legal ones, may have profound implications for an educational system. In the extreme, such a development may approach either the market strategies or the professional strategies indicated above. If, however, the strategy mainly aims at widened choices for individuals within the system, and in particular the individual student, the instrument mix must be such as to guard against directive authority from above being substituted by local tyranny. We may then arrive at a set of strategies characterized by their concern for service towards the genuine clients of the educational system.

Each of the strategy clusters sketchily outlined above has profound political implications. They are likely to enhance the achievement of certain policy objectives, and hamper or prohibit the achievement of others. What frequently happens, is that expert groups advocate the choice of certain strategies which may serve their particular purposes, or at least emerge from their professional thinking models as the "neutral" solution, while being at the same time incompatible with objectives sought by politicians. The choice of strategies cannot primarily be based on professional premises. It is a highly political element of any planning process.

V. Planning functions and roles

If any lesson should be drawn from the previous analysis, it would have to be that both planning and decision-making, and factual and normative elements of this process, are so fundamentally intertwined that an attempt to distinguish between functions and roles according to such criteria becomes rather meaningless. There is no planning function which does not involve decision-making, there are no genuinely "value free" fields for professional judgement.

I would draw the conclusion that as a function, planning is by necessity part of a decision-making process. A formally separate planning process becomes a decision-making process by itself, in competition with the processes taking place within organizational structures formally charged with decision-making. It follows that planning as a function cannot be the prerogative of a specific profession, on the contrary it is a necessary part of the professional execution of policy-making and administration.

If we assume that planning should not be a power base for a new professional group, but a means of improving decision-making processes for whatever purposes, the planning function must avoid the dominance of any specific professional group or research discipline. It must also avoid too strong adherence to specific techniques, which again usually emerges from specialized disciplines. There must be no *a priori* restrictions to the set of variables to be brought into a planning analysis, and there must be no standard approach to the structuring of data found relevant.

Which data to be found relevant, and what structuring to be found fruitful, must depend upon the general concerns of the system for which planning is being undertaken. Beyond that, and also as an expression of loyalty to the system, there must be a constant search for the unexpected and latent consequences of the system's operations, and for its impact upon the operations of other systems, even if such data would raise doubts about established system policies. Such effects are likely to cause backlashes for the system in any case; it is better then to have them explored and examined in time by the system itself.

Forms of data structuring are related to approaches to pedagogical tasks. At the one extreme, a successful educational situation brings the student to a preconceived conclusion. At the other extreme, a fruitful educational situation triggers off thought-processes within the student, the outcome of which is quite open except for the increased understanding acquired by the student.

The latter approach does not simply correspond to cases in which planners present policy-makers with more than one alternative solution to their problems, with indications of their respective consequences. The outcome of a planning process should be a more profound understanding among decision-makers, whether they are formally termed politicians or not, of the human conditions involved, of the existing possibilities for changing those conditions, and of the variety of implications connected with possible changes. Above all, it should be made clear that things are not "well in hand" if a specific alternative is chosen. The responsibility for decisions is not limited to the stated intentions only. The function of planning is not to solve the problems of decision-makers for them, it is a means by which decision-makers can themselves find solutions to their problems, and solutions based on a more profound understanding of the issues involved.

In other contexts, I have gone more deeply into the question of the role of planners. In this connection, I only want to point to the logical conclusion of a planning function as defined above. A planner cannot then be someone monopolizing the function of planning. On the contrary, his task will be to assist in the proper functioning of planning at all levels within an organizational system. In all likelihood, the performance of this task presupposes the lack of prescriptive authority for the planner over others within the organization. Whatever advice or information he has to give, will then be accepted by others only to the extent that they feel their own purposes served by it. If they do not, the planner should have no means of enforcing his views.

Such a conception of the planners' role precludes combinations with controlling roles, or staff roles involving access to central decision-making points for imposing advice upon lower levels. On the other hand, it presupposes integration within an organizational system, it is not compatible with external agencies operating in their own right, or with the occasional consultancy role. It implies loyalty to the general objectives of the system, and precludes simultaneous loyalties to external instances. This, incidentally, seems to rule out a substantial part of so-called "technical assistance" from this definition of a planner's role.

Population Groups and Educational Provision: A Challenge for Planners

I

1. The idea behind this paper is neither new nor startling: it is possible to provide education to diverse population groups by making use of a variety of educational resources. Put another way, by adjusting educational systems, broadly defined, it is possible to meet the educational needs of different population groups. The paper itself grew from a short journey to Indonesia in July 1973, and an attempt to consider the feasibility of the idea when applied to an Asian setting, to examine—even to define—its component parts in the face of Asian realities.

2. What follows is more or less specific to Indonesia and—a fact to be noted from the outset—it may be imprecisely so. Despite a wide variety of help given by many individuals as well as institutions, the factual base in some instances may be incorrect; the impressions based on misunderstandings and hence misleading. Secondly no assumptions should be made concerning the extent to which any of the content is generalisable to another Asian setting. What follows then is doubly tentative, and the writer accepts full responsibility for errors of perception as well as of fact.

3. Undoubtedly, Indonesia does provide an opportunity to discover many of the difficulties inherent in the basic idea and to sense—if not fully to grasp—some of the complexities involved. Some of the conceptual difficulties are familiar. It is difficult to determine what is an educational provision and what is not, what is an educational resource and what is not, and whether or not the limits of the definition are best established in terms of their relationship to certain stated goals. More difficulties cluster around the concepts of need and demand, difficulties familiar to anyone who has given serious thought to the question of in whose interests an education system is meant to operate and for what specific purposes its energies should be harnessed, if indeed they should be harnessed at all. The literal difficulties; those not only of definition but of listing; those of articulating a goal structure and relating it to the means of fulfilling it; those of developing an organisational system adequate for realising and maintaining it, may become more familiar once the conceptual difficulties are overcome.

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II

4. In Indonesia, the rhetoric appropriate to a radical restructuring of an educational system is never far from the surface. Concepts of formal, informal and non-formal education are discussed with familiarity and frequency. Articles elucidate the implications of implementing a system of life-long learning. Sensitive observers refer in conversation to the family as an existing educational institution in Asia. They think seriously of whether it is necessary to replicate the education-as-formal-schooling equation of Europe and America and, if not, what risks are being taken with the lives of citizens and where responsibility will be accepted for the necessary social manipulation. Plans are afoot for the development of "learning centres" which, at least in the descriptive and very non-specific literature dealing with them, promise to put into practice the concepts of educational provision related to individual need that are elsewhere only contemplated by educational reformers.

5. The talk is exciting and is convincing to the extent that it reflects a realistic appraisal of existing needs and provisions by a people committed to education and concerned about its future. What is harder to determine is whether the ideas can ever become realities. The extent to which the government is committed; the extent to which thoughts of education in terms of schooling are not so deeply ingrained as to make the next or alternative step literally if not mentally impossible; the extent to which agencies and institutions already involved in educational provision since Independence can rearrange or reallocate their existing responsibilities and work together in a new and untried scheme; the extent to which there is a willingness to depend on people rather than on equipment; the extent to which the necessary managerial capabilities and personnel skills can be found or developed—all are imponderables, and all give cause for serious concern. So does the question of economic feasibility, of cost and of cost-benefit.

6. None of this is surprising considering just the geographic and demographic aspects of the situation involved. The bare facts are familiar enough: a population of more than 120 million spread out over a land area of 2 billion square kilometres, of which some 12 per cent overall is under cultivation but some 72 per cent of the employed population is working in agriculture. It is estimated that the annual urban growth rate will be 4.6 per cent for 1970-75;[1] in Jakarta, as elsewhere, the thousands of people who leave the country to search for something

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[1] Planned Parenthood Federation, *Situation Report - Indonesia*, London, 1972. mimeo.

better in the city are a physical and unavoidable presence. The overall density of population is 62 per sq. km of which some 82 per cent is rural; the population density in Java, where it is heaviest, is 580 per sq. km.[1]

7. The population growth rate is estimated variously at 2.6 per cent [2] and 2.8 per cent:[3] a sample census conducted in 1970 indicates a growth rate of 2.68 per cent in 1970-71.[4] The age structure of the population in 1970 is also significant:[5]

24.4 million	0 - 6 years
17.9 "	7 - 13 "
6.7 "	14 - 16 "
6.0 "	17 - 19 "
8.8 "	20 - 24 "
32.0 "	25 - 29 "
4.1 "	60+ "

The dependency ratio (number of persons of dependent age per 100 persons of working age) is estimated at 79.[6]

8. Figures vary, but achievements in terms of school enrolment are impressive; 78.5 per cent of the 7 to 13 age group are enrolled in school (ordinary and religious); 19.4 per cent of the 14 to 16 age group; 9.8 per cent of the 17 to 19 age group.[7] At first glance this is reassuring, as are projections of future enrolment. The temptation must be strong to concentrate available energies and resources on strengthening the existing school system and of giving it sole responsibility in Indonesia as elsewhere for the vocational, social, and cultural advancement of individuals and the nation.

9. Then reality of another sort intrudes. Even leaving aside drop-out rates, and very real doubts as to how effectively the enrolment rates translate into quantity of hours or quality of curriculum and teaching.

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[1] Other figures in this paragraph are taken from *Statistik Pendidikan.* A publication of the Office of Educational Development (BPP), Ministry of Education and Culture, Jakarta, 1972.

[2] Population Council. *Country Profiles - Indonesia,* New York, 1971.

[3] United Nations Demographic Year Book, 1970, cited in Planned Parenthood Federation, *op. cit.*

[4] Unesco, *Educational Profile - Indonesia, 1970-71* (mimeo.); based on material collected by a project preparation/appraisal mission, May-June, 1972

[5] *Ibid.*

[6] Population Council, *op. cit.*

[7] Unesco, *op.cit.*

There are 3 million 6 to 14 year-olds *not* in school, 12 million 14 to 19 year-olds *not* in school, 45 million adults beyond the age of 20 *not* in school. The matter can be put even more bluntly: "Government expenditure allocated for education amounts to 20 per cent of the entire State budget ..... is distributed in all departments ..... (and) is enjoyed by 15 per cent of the entire Indonesian people, i.e. children ..... and adults studying."[1] There are also close to 25 million children who have not yet entered school. In this context, talk of restructuring educational provision becomes more than a luxury.

10. In terms of planning, the significant question may well be not so much where the non-school population is not, but where it is. How many are reached or reachable by any of the information-disseminating networks that exist? Some hundreds of thousands of people are touched by the existing out-of-school activities of the Ministry of Education and Culture as well as of the six other Ministries engaged in extension activities of one sort or another; some private organisations are also active, particularly in urban areas. Information seemingly does not exist, however, about who reads newspapers, who listens to radio, who does neither but is in another organisation that could be utilized for specific educational purposes, who is not in any system.

11. The dilemma thus posed is illustrated by some current problems of population education. Recently a two-week seminar with representatives from several private organisations and government departments agreed that the urgent target group for immediate population education are those 12 million men and women between the ages of 14 and 19 who are not in school. It was further agreed that the existing infrastructure would be used to convey the appropriate messages to them. For instance, a youth magazine is planned, under the auspices of the Ministry of Information, to include population education information; the Agriculture Department has undertaken to use its networks, etc.

12. This too is an instance where the need — i.e. population education — has been clearly enough defined, even if details of curricula and teaching methodology are not yet settled, and where the target population group has been identified. The situation becomes more complicated if

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1. Sudarmadi, S. "Lifelong Education and Development". In *Prisma Magazine*, April 1972 (unofficial translation). Elsewhere, (e.g. Chapter II, "Description of Non-Formal Education Activities", *Contributions of Out-of-School Education to National Development*, Jakarta, Office of Educational Development, Ministry of Education and Culture, 1972) it is stated that the number of primary school dropouts is as high as 30 per cent, and that those students who go on to Junior and Senior secondary school are 10 per cent in number respectively

no less urgent when the realms of the undefined need and the undefined target group are entered: in brief, when one considers the overall goals of education in a country like Indonesia, how they are translated into individual demand or need, how they are then translated into the objectives of particular programmes or projects.

III

13. Education has a clear purpose in Indonesia. It is closely linked with national development goals, meant to support these goals and to make their realisation possible. The government's commitment to education is equally clear, as Article 31 of the Constitution of the Republic of Indonesia indicates:

> Sect. 1: Every citizen shall have the right to obtain education.
> Sect. 2: The Government shall establish a system of national education provided by law.

14. But what does education for development mean? Generally it is interpreted by Indonesians to include not only the teaching of basic skills such as those of agricultural or vocational pursuits, but also (and at least in the literature emphasis is placed on this second aspect) the development of individual character, the development of skills and attitudes suitable to a changing society, the formation of values. The Act of Educational Principles enacted in 1946 sets forth this dual purpose:

> "The objectives of education and instruction are to turn out men with character and capabilities, and make democratic citizens who are responsible to promote the welfare of the community and the country."

The explanation given for this is that "development" is not only a question of the Gross National Product and various economic indicators, but also a question of changing of attitudes and thinking patterns so as to enable people to participate in development, to enable development to be felt by the people. The basic difficulty is that ultimately the descriptions seem to run around each other in circles: there appears to have been little articulation of exactly what these attributes of character or attitude are. Perhaps the task is impossible, but it seems necessary that the attempt be made before any serious attention can be given to the question of educational means by which the objectives can be realised.

15. An instance of the confusion inherent in the skill vs. attitude dichotomy is to be found in the literacy programmes. One result of the

emphasis placed on education by the founders of the Republic is that the Ministry of Education and Culture (now in particular the Directorate of Community Education) has been deeply involved in "non-formal" education, i.e. adult and out-of-school education, ever since 1946. In the early years, emphasis was placed on extension of basic literacy. Here again the achievements have been impressive; in 1964 it was possible to announce that illiteracy had been virtually wiped out in the 13-45 year old sector of the population[1], although enthusiasm was tempered somewhat by later revelations of how many one-time "literates" lapse into illiteracy once their training is over.

16. Nevertheless, it is hard to determine what exactly is meant by literacy. Soenarjono gives at least some indication of the causes it may be called upon to serve. Objectives of literacy work are :

(1) to enable illiterates to gain skills in reading, writing, and simple arithmetic;
(2) to use the literacy campaign as an educational programme to organise and stimulate the community for further activities;
(3) to develop incentives for people to work hard, in co-operation with one another, in productive activities for the development of both themselves as individuals and the community.[2]

If these are the objectives of literacy work, does it follow that the objectives of literacy itself are to establish the conditions necessary to allow the development of (2) and (3)? If so, can so much be asked of literacy? One cannot help but wonder whether literacy all by itself is the key to a better world; depending on the priorities used to define such a world, it is conceivable that illiteracy can be functional too. Perhaps revealingly, the same document states:

> "The main difficulty in Indonesia seems to lie in convincing people of the advantages of and necessities for reading and writing".

17. An attempt to make the relationship between literacy and development more explicit can perhaps be seen in the pilot experiments conducted since 1970 in Jakarta. In an attempt to overcome deficiencies of past literacy work, literacy training is linked "with a vocation or a subject of interest, with the understanding that the student could learn to read and write at the same time as he or she was learning the vocational subject". At least one can sense that such definitions of functional

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1. Soenarjono Danoewidjojo. "The Contributions of the Ministry of Education and Culture to Non-formal Education". Working paper distributed by the Directorate of Community Education, p. 303. The same information is given in many other sources.
2. Soenarjono Danoewidjojo. "Adult Education in Indonesia with Special Emphasis on Literacy Work". n.d.

literacy are made with development objectives in mind rather more than with those of accepted methodology. Ultimately however one senses much that is obscure and much that would be difficult to translate into teachable content.

18. One example frequently cited of what education for development means is Jombang, the by now deservedly world famous educational project organised in the district of Jombang, near Surabaya and existing largely through the energies of the local *bupati* and those of its own self-sustaining activities. The enterprise was begun by the *bupati* (i.e. administrative head of the district) a few years ago as a reflection of his concern about "drop-outs", local boys from the local villages who did not complete primary school and whose future, aside from its certain unemployment, was in doubt. Courses were organised with one objective in mind: to give the boys the specific skills and attributes necessary to enable them to return to the local villages and lead productive lives there. It was also realised that the villages would benefit as the specific skills, e.g. better rice-growing techniques, were disseminated. What is interesting to note is that the necessary attributes appear to be primarily a by-product of the skills; also, in this instance, the undoubted enthusiasm and concern for each boy, which are two of the *bupati's* chief attributes, would be a factor as well.

19. The Jombang venture has by now broadened its original scope, and is consciously and deliberately training cadres of young men to participate in the government's transmigration programme, i.e. to move, somewhat like the pioneers of another age and place, to uninhabited or lightly inhabited areas in order to develop them. Again, these boys are given skills: rice-growing, animal husbandry, radio mechanics, sewing, hemp weaving, etc. And indeed one wonders, in general as well as from a development point of view, whether or not desirable character attributes do not usually arise from a person's secure knowledge of his ability to exist in his environment and to manipulate it at least enough to ensure an economically self-supporting life.

20. To summarize: if education is connected to development, which in turn is connected to attributes of personality and character, where does the task of articulating educational need begin? Perhaps emphasis should instead be placed on what people say they would like. The only survey done so far in Indonesia concerning "Social Demand for Education" concentrates only on the in-school population and seems to indicate that in Indonesia, as elsewhere, people would like education to give them a better job, which is not very helpful in terms of defining population groups. At the same time, Indonesians concerned with the question of determining needs for the out-of-school population are careful to point

out the difference between felt or expressed needs on the one hand and those which are not yet recognised on the other, i.e. the difference between subjective and objective demand. A further problem is raised from a potential conflict of interest between individual or community need as opposed to national need. In any event, the attempt actually to articulate needs - individual, community, national; personal, inter-personal, socio-economic - has not yet been made.

IV

21. When attention turns to the question of educational provision, problems of definition are again immediately encountered, not least of them being one briefly mentioned earlier in this paper. Specifically, it is arguable that an educational resource can be defined only in terms of the educational purpose it is intended to fulfil, i.e. unless something has a specifically educational function in relation to specifically stated educational objectives, it cannot in all justice be considered a means of educational provision. In the absence of objectives (in this case the absence of clearly defined need or demand) the discussion of educational provision must to a large extent be conducted along somewhat unrealistic lines.

22. As a beginning, however, it is useful to look briefly at the established out-of-school educational activities of various ministries and government agencies. As stated previously, there are seven of the former[1] and numerous of the latter deeply involved in this work, not to mention private organisations. According to the Decision of the President of the Republic of Indonesia, No. 34 (18th April, 1972):

> "The Ministry of Education and Culture shall have the duties towards and shall be responsible for overall educational and training development carried out by both private bodies and government."

Although it is difficult to determine the extent to which coordination is an existing problem, nevertheless some difficulties of the present system can be indirectly identified. To do so is instructive if only to cast some light on the probable difficulties of coordinating more complex networks, were such networks to be established.

23. The Directorate of Community Education understandably does not emphasize co-ordination of its own and other activities as a particularly pressing problem. Instead it cites lack of funds, geographical difficulties, diversity of languages, lack of proficiency among volunteer teachers, and the high drop-out rate in literacy and adult education classes as major problems. It is careful to define its functions in terms that seek neither to duplicate the work of other agencies nor to give to itself anything but

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[1] Religion, Education and Culture, the Interior, Social Affairs, Transmigration and Cooperation, Defence, and Information Ministries.

the major role it has traditionally held. The role of Community Education, it is stated, is:

(a) to induce people to adopt new attitudes and values.

(b) to equip them with the required knowledge and basic skills, so as to prepare them to be more receptive and responsive to, and to benefit fully from, the information provided by the Extension Worker. [1]

24. In practice this means that the local Community Education Workers (who are said to exist in most of the 3,500 Ketjamatans — or districts — of the country) are assigned the tasks of organising and supervising the adult education activities at the village level and may also help to coordinate and integrate educational programmes undertaken by different agencies. Directorate of Community Education activities alone might include literacy and post-literacy work, special courses for women in family planning or home-making, village library provision, work with youth groups, community leadership, training courses.

25. Despite the existence of committees and coordinating bodies at the central level, there seems agreement that coordination is in fact a local matter. At first this is not cause for worry Indonesian observers also note that a certain degree of decentralisation of decision-making and administration is necessary if people at the local level are to be actively involved in development activities. However, there are two serious disadvantages. First, extension activities seem to be successful only to the extent that the character, personality or capabilities of the local leadership permits it. Secondly, the dissemination system is admittedly weak. At the present time, there is agreement that much talent exists in the field, but little communication horizontally or vertically. What works in one place might work in another, given the chance, but it appears the chance is rarely given.

26. Another picture is given of the difficulties inherent in past and present community education activities by an article written in 1970 by Santoso S. Hamijojo. Making the point that agreement was first reached in 1948 between the welfare ministries to secure a coordinated approach to village development, he argues that committee after committee has been created "with insufficient regard to sound human relationships and the new philosophy of school administration." Specifically he cites the "failure" of the experimental villages programme launched by the

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1. Soenarjono, Danoewidjojo. "The Contributions of the Ministry of Education and Culture to Non-formal Education", *op. cit.*

Ministry of Internal Affairs in 1951 as resting largely with the fact that trained personnel were missing from the field and that no training was given to the appropriate officers in understanding the philosophy or concepts of community development, nor in the skills necessary to working with people or groups. Citing other programmes whose effects have been minimal, compared at least to original expectations, he notes a similar pattern[1].

27. It seems probable that the difficulties would magnify once the unknown factors of informal education enter the picture, i.e. if the incidental factors were to become part of a planned system. Of the potential of these factors, little is known. It has been mentioned elsewhere that in Indonesia it is still possible for someone to state that "the family is an educational institution." At the same time, concern is expressed over the breakdown or disappearance of traditional culture factors, such as the family, facing industrialisation and urbanisation. Indeed this second observation is connected in turn by some speakers to a growing reliance on schooling as the means to perform educational tasks no longer performed elsewhere, or to a sometimes expressed feeling that "schooling is all we have." The potential of harnessing industry as an educational force is being considered and it is perhaps revealing that fairly recent articles have appeared discussing the necessity of coordinating vocational education with industry, and even giving some vocational education responsibilities to industry. The Office of Educational Development says it is about to launch a massive investigation of the fit between vocational education and labour market needs, which would be an investigation perhaps significant in terms of assisting in the definition of delimitable population groups. Before such groups can be seen in relation to the existing or potential modes of educational provision, however, much work remains to be done.

V

28. A paper dealing with educational provision to population groups in an Indonesian context cannot close without reference to what appears, to one observer at least, if not to the Indonesians, as an educational achievement of massive proportion. Indonesia is a land not only of thousands of islands but also of more than 400 local languages, most if not all of them mutually unintelligible. Bahasa Indonesia, the national language (closely related to Malay), is now spoken if not by the entire

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[1] Hamijojo, Santoso S. "Introductory Notes on Community Development Programmes in Indonesia: A Study of Some Problems of Inter-departmental Coordination". Jakarta, Office of Educational Development (BPP), Ministry of Education and Culture, 1969-1970.

population, at least by millions of people and in every geographic area, even the most remote. The magnitude of the achievement rests in the fact that this language-teaching and language-learning programme has been conducted almost entirely since Independence. When pressed about this accomplishment Indonesians treat it fairly lightly. They point almost apologetically to other factors: it was declared a unifying element and a national symbol at the Youth Congress of 1928 and thus was closely connected to independence aspirations; it developed from Malay which had been a lingua franca in the archipelago for some centuries; it became the only practical official language (other than Japanese) when Dutch was banned during the occupation. Nevertheless the fact remains that millions of people have learned to speak it in less than 30 years since Independence. One is told that the formal school system was the chief vehicle for doing this; one also hears that representatives of other Ministries and agencies participated heavily in the effort. One impression remains: that at least once in Indonesia's recent history, available educational facilities have somehow been marshalled in the service of a well-defined task, and succeeded[1].

29. In brief, it has been done before, and one senses it can be done again. Undoubtedly, the parts exist. One hesitates to ask too much of planners. Nevertheless, one senses the parts are there, and are waiting to be assembled. The questions are when, and how?

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1. A lucid discussion of this and other factors is provided by Effendi, S. "The development of Bahasa Indonesia in relation to the National Language Policy". Paper submitted to the Conference on the National Language Policy and Language Development of Asian Countries, Manila, Philippines, December 18-22, 1972.

3. EDUCATIONAL INNOVATION: FROM GENERAL STRATEGIES TO CONCRETE PROPOSALS

Population and Education: Development Strategies

I. Individual and macro decision-making

A certain amount of undergrowth needs to be cleared away if we are to arrive at the heart of the matters which I perceive to be the concern of this paper and hopefully this seminar. The terms used in titling this paper are themselves part of this undergrowth.

In a development context (when we talk about developing societies or countries) the words education and planning are used most commonly in a macro sense. We use the term education, for example, to connote an educational or schooling system. We use the word planning to indicate the usually large scale attempts by nations and societies to order priorities and organize those processes which will bring about desired social progress. All this is proper enough, within this context. But there is another context in which these very same terms also have saliency, and our macro level concentration frequently inhibits our analysis of this other focus. In a micro, individual or family context, the words education, planning and development are seldom used in a macro way. But this does not mean to say that these processes do not operate. In most societies individuals do plan, learn, and order priorities. Their methods of doing so may be less sophisticated, the end results less predictable, but there is no reason to ignore this micro level activity. In fact what is becoming increasingly clear is that a knowledge and understanding of these processes in individual or family terms is fundamental to macro-level planning for development.

Another part of the undergrowth involves our seeming inability to perceive in each of these terms a common essential quality. Each term describes a process concerned with decision-making and the expansion of options and choices. This is valid for both macro and micro-levels of action. Whatever else might be the goals of development — improvement in living standards or quality of life or ideas of that ilk — these kinds of ends are dependent upon expanding a nation's or individual's range of options or choices. The process of planning in essence is simply a systematic means of rationally and objectively assessing alternative choices. In much the same way it is possible to view

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education as a process aimed at equipping individuals with the knowledge and skills of rational decision-making.[1]

What is being suggested here is that a wedding of these first two points reveals the notion that individual or micro level decision-making is a foundational building block in the process of development.

From the population viewpoint this notion or approach appears to have some relevance. The so-called population problems of the developing world – rapid population growth, high rates of rural-urban migration and other maldistributions of population – are a direct outcome of individual decision-making, or of decisions made en masse by individuals in response to cultural or traditional forces in operation within their particular societies. It also follows that if social development is impeded by the operation of these factors, as considerable evidence suggests, nations in development require strategies which attack the population dynamic in terms of affecting some change in individual decision-making, or some change in those social and traditional constraints which frustrate that process. While it is a statement of the obvious — it warrants repeating – in most societies, developed and developing, the school has become the basic agency whereby a society socialises its young. This does not make the school an agent of change as so many non-educators imagine, but it does force the conclusion that under certain conditions it is one of the few agencies which could be used to cultivate and shape the decision-making process.[2]

II. Education and population, past and present progress

Before examining strategies which make the school, or more broadly the educational process, more effective instruments of social change, vis-a-vis their operation upon the population dynamic, it is worthwhile looking at past and present attempts of organisations and governments to educate a people in matters related to population. There are four issues which warrant attention:

1. Hitherto most programmes which have been planned to educate a mass of people in population-related matters have focussed upon the adult age group. By and large such programmes have been oriented towards women who are married and within the reproductive cycle. The content of the motivational message directed at them has been limited to the as-

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1. Johnston, J.A. *"Population and Development"*. ANZAAS Conference Proceedings, Sydney, Australia, 1972.
2. Hanson, J. & Brembeck, C., *"Education and the Development of Nations"*. Englewood Cliffs, N.J., Prentice Hall, 1965.

sets of the small family, and the informational backup to such messages has largely involved a knowledge of the means of family limitation. The paradox here is that the majority of decisions which can practically and theoretically be made by individuals, which have an impact upon the population dynamic, are made by a much younger age group, or are influenced by others who lie outside this particular target group. I will return to this point later in the paper.

2. These so-called adult oriented programmes have in most instances within the Asian Region been instigated by voluntary welfare organisations. The general objective of such bodies has been to improve individual or family quality of life through the planning of family size. It is a paradox that in a number of cases neither these organisations nor governments have grasped the importance of these activities in a developmental sense. The further paradox, more tragic in its implications, is that where governments have perceived the relevance of family planning programmes they have sought to incorporate them into government infrastructures without undue modification. In this way, for example, family planning clinics have been absorbed into government maternal and child health programmes. In almost all instances the locus and framework of efforts to educate a populace has remained medical. In a developmental sense the paradox here is that the population-family size and quality of life set of interrelationships are essentially a social and not simply a medical set of issues. When it comes to educating a mass of people in population matters, of motivating large numbers to make non-traditional decisions, the medical context tends to inhibit the development of mass-oriented communication strategies.

3. A related paradox in many developing nations of the Asian region stems from the development of governmental population policies. In too many instances policies appear unrelated to overall developmental strategies. In some cases policy appears to take little cognizance of cultural and traditional constraints which operate to the detriment of the policy. For example, there are governments within the region with population policies designed to limit population growth through the education of the female in the reproductive age group. At the same time these governments pursue policies in other areas which continue to depress the status of women in the society. This kind of incongruity is even more marked in the case of one nation, where official population policy favours family limitation, but where housing policy gives priority to parents of large families.[1]

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[1] *"A Review of Population Policies in the ECAFE Region"*. Bangkok, ECAFE, 1972. (mimeo)

4. A final paradox. At macro level rapid population growth has been perceived by most planners as the key and crucial issue. This is not disputed. But there are other aspects of the population dynamic with impact upon the quality of life which also merit attention. In Indonesia, for example, there is a classical maldistribution problem. In Thailand the growth of the primate city of Bangkok presents planners with problems of some magnitude. And this is true of most other primate cities in the Asian Region. While we can point to educational programmes designed to acquaint an adult population with an elementary understanding of growth issues, by and large one seeks in vain for mass educational programmes which attempt to educate a people in terms of their migratory behaviour or in terms of their choice of living place.

III. In-school strategies

Enough has probably been said in the Seminar to make redundant the notion that in the developing world of Asia, rapid population growth, large-scale rural-urban migration and other maldistributions of population inhibit social development and in particular the expansion of school systems. It is sadly ironical that the bulk of the data which we possess from the region which correlate fertility or family size with schooling as a quantum indicates a clear inverse relationship. [1] In the light of this evidence some would contend that an expansion of school facilities, and a greater measure of distributive justice in terms of opportunity for schooling is a priority strategy (albeit long-term) in combatting rapid population growth.

Unfortunately we know very little about the schooling business and the way in which it operates upon fertility. Some of the demographic data we have from the region suggests that the schooling process raises social aspirations, and provides a set of rewards which, in the eyes of the recipients, can best be capitalised in the literate setting of the urban market place. In migration terms the school is perceived to be one of a number of push factors. Evidence from other parts of the developing world further suggests that the process of urbanisation "activates the effect of education on fertility." [2] While there is less clear evidence from the Asian region, Thai and Indian data do indicate that rural-urban migrants, with high levels of educational attainment, achieve smaller than rural norm family size. [3]

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[1] Hawthorn, G. *"The Sociology of Fertility"*. New York, Collier MacMillan, 1970.
[2] Stykos, J.M. *"Human Fertility in Latin America"*. Ithaca, N.Y., Cornell University Press, 1968.
[3] Goldstein, S. *"Fertility and Migration in Thailand"*. Bangkok, Institute of Population Studies, 1973.

Some studies in family planning communication from within the region suggest that the schooling process widens opportunities for increased information flow. Thus it is claimed that the educated individual in some societies is provided with greater access to a knowledge base about fertility control and its benefits. Reasonably sound studies from a number of countries in the region clearly demonstrate that where the school enrols a sizeable proportion of girls, and retains them to the upper levels of the school system, age of marriage tends to be delayed with consequent decreases in the number of children born to the adolescent age group. [1]

What seems abundantly clear is that, whatever the relationship between schooling and fertility, it appears to be significantly indirect. It is neither the content (what is taught) nor the method (how it is taught) which appears to be of much import. Rather, the important elements would seem to be the period of exposure to schooling, and the way in which the process may expand social options over time.

There are three implications of all this; and they can be couched in question form:

1. Is it possible or desirable to expand school systems so that the process of schooling might continue to operate indirectly upon the growth aspect of population?

2. Is it possible to infuse into the content of schooling an educational programme which will bear more directly upon population issues and problems? In short, is it possible to in-school educate large numbers of children to make more rational and responsible decisions about their population-related behaviour?

3. Is it possible, without modifying the traditional content of the schooling process, to utilise school systems to positively affect development through impact upon the population dynamic?

IV. Expansion of school systems

In the last decade school systems within Unesco's Asian region have been characterised by expansion at all levels. Immense efforts have been made to improve enrolment ratios, and to increase the number of children moving through to higher levels of education. While the efforts are commendable the prognostications for continued progress are—to say the least—gloomy. The most optimistic projections of school enrolments indicate that in the year 2000 a majority of primary-aged school children in the developing nations of the region will not be receiving seven years free and compulsory primary education.[1] And this situation will prevail largely due to the continued rapid growth of population.

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[1] Fernando, S. & Jayawardene R. "*Fertility Differentials in Ceylon.*" Proceedings of IUSSP Conference. Sydney, Australia, 1967.

From a population standpoint it is difficult to argue expansion. It is at the upper levels of education (secondary and tertiary) where the inverse relationship between schooling and fertility is most marked. Thus in arguing expansion we are also arguing extension. Bitter past experience would indicate that these are not always simultaneously possible. Furthermore to advocate expansion and extension of schooling as a variable affecting population growth is to argue for a high cost long-term strategy, the working mechanism of which is indirect and imperfectly understood.

None of this, however, presupposes that the expansion and extension of school systems is not desirable or indeed necessary on other grounds. Nor is it to advocate the disestablishment of these institutions. The nations of the region have bought into schooling as part of a general strategy of development. While schools may be seen to be ineffective and dysfunctional in a developmental sense, this does not infer that they have no population development role. The fertility behaviour of school survivors, the demographic data on migration are testimony enough. The real question here is: can the school be made a more effective development tool in terms of impact upon the population variable?

V. In-school population education

Attempts to educate adults in some limited population matters have not been unqualified successes as some of the paradoxes earlier indicate. It is not therefore surprising that those with a stake in the population field should see in the captive audience of school-aged population a target group of promise. Today within the region there are some half dozen population education programmes infused into school curricula (usually at post-primary level). Active planning for the introduction of similar programmes is underway in a number of other nations. In essence the major objective of these programmes is to provide pupils with a knowledge and understanding of population issues

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[1] G. Carceles *"Educational Projections for the Asian Region"*. Paris, Unesco, 1972. (mimeo)

(growth, distribution, migration, etc.) as they bear upon the national and individual quality of life. The long-range hope is that an awareness of these population issues will assist the learners in adulthood to make more rational decisions about their population-related behaviour.[1]

Let us be very clear about the nature of these programmes. Firstly they are targeted on an in-school group. At secondary levels within the Asian region the in-school population is typically over-representative of the middle and upper social economic classes. The children who survive the process of schooling are those who by and large, and by a complex of circumstance, are destined to lower than norm future fertility patterns. Thus to some degree in-school population education is preaching to the already converted. In a population-development sense, the children most in need of awareness in this area are the majority of youngsters who are unenrolled, or who have terminated school enrolment before reaching secondary levels of education. It is these generally lower class children who, by a converse set of circumstance, are destined for the traditional high fertility pattern. The corollary of this would seem to be that if school systems cannot be expanded to include the great majority of the school-aged population, and if we wish to bring about changes in the population behaviour of the out-of-school group then we need to develop non-formal educational strategies to reach and educate this majority.

Secondly, the content of in-school population education as developed to date has, in a somewhat typically academic form, concentrated upon the causes and consequences of a narrow range of demographic phenomena. This may be adequate to the needs of an in-school group, who might be perceived as the future leaders and decision-makers within a society, but this content has a curious lack of relevance to the basic population questions confronting most individuals in any society. What decisions can an individual make (practically or theoretically) which will have an impact upon population? It is here suggested that there are six crucial areas: when to leave school, when to marry, when to have the first child, when to have subsequent children (spacing), what should be the completed family size, and whether to migrate. In most societies these decisions are the prerogative of the youth age group. They may be influenced by an older age group, but they are typically matters decided early in life. If the process of decision-making in a population sense is important developmentally, then it is the above kind of decisions which should lie at the core of in-school and out-of-school curricula or content. Such a focus would also permit an analysis of the traditional and customary constraints which operate within specific societies upon population decision-making.

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[1] See for example, "*Population and Family Education*". Report of an Asian Regional Workshop. Bangkok, Unesco, 1971.

Thirdly, the objective of in-school programmes of population education is a long-term change in population-related behaviour. Unfortunately, much of the educational evidence which we possess indicates that an increase in awareness and knowledge does not always initiate change in behaviour. Thus in their inception stages in-school population education programmes operate blindly. It is vital that longitudinal research studies be commenced immediately to assess the comparative and relative behavioural merits of programmes already devised.

But again none of this negates the possibility of in-school population education as a strategy seeking to effect, through the process of schooling, a greater measure of influence upon the population variable in development. A sharper focus on content, and applied research on effect, would help forge a more useful tool. In answer to the question posed earlier, there is a single one word answer. Is it possible to infuse into the content of schooling an effective population education programme? The one word is at this stage... "perhaps".

VI. School and non-school strategies

One last question remains for consideration. In answering it and in dealing with the implications which flow from it I wish to examine, in particular, two educational systems which have developed school and non-school strategies that appear to have some relevance to the population development problems facing the Asian region today. The educational systems are those of the People's Republic of China and the United Republic of Tanzania.

It must be pointed out, prior to this analysis, that the paper does not advocate the adoption of these approaches in whole or part. The educational strategies developed in these nations function within a specific context. They cannot be uncritically borrowed. But the strategies are suggestive, they have implications for what we are about.

Is it possible to use school systems to positively affect development through impact upon the population dynamic?

The timing of education

Prior to the Cultural Revolution in China the educational system was constructed in the usual hierarchical fashion. For a variety of reasons this revolution initiated a break in what had become the traditional sequence. Entry to tertiary level education no longer takes place directly from secondary levels. Secondary school graduates presently spend three years working in communes as a prerequisite for election to tertiary level studies. Whereas once tertiary level institutions graduated students at age 20-21 this has now become a common age of entry.[1]

The break in time strategy has both population and development repercussions. From a population point of view it should be recalled that delayed marriage has been the most consistently advocated means of fertility control within the People's Republic. While there is no hard data upon the effect of this change upon nuptuality or fertility it seems reasonable to suppose that this break is a factor fostering delay for many youth with further educational aspirations. From a developmental point of view this strategy yields entrants with a practical background of experience and greater maturity, factors which have permitted a shortening of courses, yet an extension of content. Some cost savings have accrued.

In Tanzania all school graduates are expected to spend two years in National Service. Indeed all young men and women between the ages of 18 and 35 are eligible for such service, although facilities have, to date, restricted admissions. While this National Service involves some physical fitness and para-military training in its first five months, the basic purpose of this programme is political and developmental. National Service Corps are taught the skills of modern agriculture, road and bridge construction, carpentry, smithing and the like and are given opportunities to put this learning to practical use in government development projects. National Service camps and the corps themselves are expected to be as self-sufficient as possible and to educate others in the skills they have acquired.[2]

Recent data from the Tanzanian census (1967) indicate a delay of small magnitude in the average age of marriage. While most National Service trainees are unmarried, it would be unwise to contribute this demographic shift solely to this programme. What is, however, clear is that National Service programmes are educating ever-increasing numbers of women and girls. The educational stress placed upon service to the community, the values of planning and independent and cooperative decision-making appear to be positive factors likely to eventually foster more responsible attitudes to population-related matters.

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[1] J.A. Johnston, *"Education in the New China"*. Sydney, A.H. & A.W. Reed, 1971.

[2] J.K. Nyerere, *"Education for Self Reliance"*. Dar es Salaam, Ministry of Information, 1967.

The implications which these strategies have for us involve the timing of education. What is the current conventional wisdom which dictates that the Asian child begins formal schooling at age 6 or 7 and completes his promised 7 years at age 13 or 14? Or, as is more usually the case, has dropped out of school before age 12?

From the standpoint of population and development it may well be that a retiming of elementary education has considerable merits. Let us presuppose a beginning to formal education at age 10. If we could then retain children for 5 to 7 years we appear to have a twin attack on both the population variable and development. The retention of girls to, say, age 17 would tend to delay marriage and decrease adolescent fertility with a consequent lowering of overall birth rates. At one and the same time we would derive short-term benefits in the employment situation and in the long-term create a more mature workforce. Furthermore the strategy suggests that with an older in-school group we have the possibilities of linking school and vocational training in much more realistic ways.

This may seem a radical strategy. Yet Tanzania has already raised the age of entry to elementary schools from 5 to 7 years and is considering a further shift upwards. There are modifications of this strategy which the case examples already quoted also infer. Given the present dropout or withdrawal situation in the Asian region, there may be some assets in regarding this as a temporary schooling break and attempting to offer vocationally linked training facilities to an older age group without prejudice in terms of prior education. Or it may well be that we can offer half-school-half-work programmes (and the Chinese model is again instructive) using an apprenticeship strategy more widely, both to give schooling greater practicality, and to increase the educational time span.

The question raised above would seem to have a positive set of answers.

The transmission of education

In his critique of the present-day school Ivan Illich argues that this institution operates to monopolise knowledge. Perhaps Mark Twain said it better in one phrase "My education was interrupted by my schooling". Too often in Western societies we continue to confuse these two and to regard the school as the only viable and practical means of educating a mass of people.

In the People's Republic of China it is relatively commonplace still to discover whole villages of people who have been brought to some measure of literacy, due to the fact that in the early days of the Republic a child scholar possessed these skills and imparted them to the others. Similarly it is possible to meet semi-literate but nevertheless highly skilled individuals teaching at tertiary levels, in fields such as applied mechanics, machine tool operation and so on. To borrow the Chinese phrase, the strategy is: "Everyone can teach one, everyone can learn from another".

In both Tanzania and the People's Republic primary and secondary schools have practical curriculum components which link school and the world of work. In Tanzania many schools function as almost self-sufficient cooperatives with their own farm and their own cottage industries. Urban schools in China are matched with urban and rural communes, and all children spend some time each week, month and year learning practical vocational skills from workers and peasants in factory and field. In both countries it is not unusual to find skilled workers teaching in classrooms.

In a developmental sense a strategy such as this widens the pool of ability and, if soundly devised, materially assists in overcoming shortages in skilled manpower supply. Furthermore there seems also to be a subtle psychological advantage which can have in these societies positive developmental results. The strategy devalues, or tends to underemphasise, the prestige so often attached to formal schooling and the certificate rewards proffered. Cooperative development is thus not impeded by individualised rewards. The kind of problem characterised by the educated unemployed is to some extent mitigated.

The population educational aspects of strategies such as these may not appear highly relevant in the Asian context. Yet there are inferences of some import. If there be a need to develop non-formal education strategies, the lesson to be learnt may lie not in the construction of a new institutional base, but in the mobilisation and utilisation of hitherto untapped pools of ability. To quote but one example, let us imagine that we wish to bring to out-of-school youth a programme of population education. There are already (often in a diffuse and uncoordinated way) an array of personnel with some educational function in contact with youth. In many Asian societies there are social and political organizations with a youth division, in many rural areas there are health officers, government officials and teachers, in urban areas trade union officials, and management personnel to some degree or another involved with a youth segment of population. It may well be that at little financial cost a population education directed at this intermediate audience might have significant transfer benefits.[1]

The context of education

The large primate cities of Asia continue to grow at rates which outstrip even those of national population growth. And there is little evidence that the rate of rural-urban migration is in any way slackening. Furthermore urban-rural differentials in terms of living standards are tending to widen, the exception to this being the shanty town slum of the recent rural migrant found typically on the periphery of the urban complex. But in terms of quality of life the Asian city is now beginning to throw up problems such as traffic congestion, pollution, inadequate sewerage disposal and water supply which raise very real questions about the processes of migration and urbanisation in development.

In Tanzania less than ten per cent of the population live in urban places of over 5,000 people. Thus in that nation the process of development has not been perceived in essence as a process of urbanization or industrialisation. Rather the philosophy has been that development must be applied to the mass of people living in the nation, especially since that mass is engaged in an economic activity (agriculture) which will for some time to come remain the principal source of national income, and the principal avenue for employment. The strategy is thus to aggregate rural dwellers into cooperative village communities and develop this base in somewhat Ghandian-style. At a macro planning level the strategy is to provide village communities with essential services such as roads, electricity, hospitals, clinics and schools. But this in cooperation with the communities, who are encouraged to assist in the construction and provision of these amenities. The notion is to create attractive conditions of rural living, or environments which will hold and give opportunity to educated rural youth.

Education, both in-school and out-of-school, has a significant role to play in this development strategy. The curriculum of primary and especially of secondary trade schools is oriented towards the improvement of farming skills and techniques, and the growth of cottage-based industries such as weaving, carpentry and metal working. Furthermore, schools are encouraged to take part in community building in an active way. The orientation of education is towards cooperative rural village living. [1]

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[1] J.A. Johnston *"Population - Family Life Education: Approaches to Children and Youth"*. London, IPPF, 1971. (mimeo)

In the People's Republic of China the ends are similar. The aim is to strengthen the rural commune base and to decentralise some light industrial plants into rural areas. As already mentioned, schools are actively encouraged to participate in both agriculture and local industry. But the movement to develop the rural base is given added impetus by the out-migration of the urban intelligentsia, civil servants, and urban youth who are encouraged to undergo a kind of rural therapy and to re-educate themselves to live and work like peasants. Further grist to the ruralisation mill is given through the purposeful location of semi-tertiary level educational facilities such as poly-technical colleges in rural areas. Thus the cities do not become the reservoirs of educated manpower difficult to dislodge.

It is significant that in both nations quoted rates of urban growth are considerably below those for other nations at similar stages of development. In both instances schooling and the educational process have played important roles in inhibiting over-urbanisation and high rural-urban migration rates. The strategies are again instructive.

VII. Conclusion

The above discussion of strategies could be considerably extended to discuss the very specific ways in which these self-termed "socialist" societies educate their people in population-related matters. But enough has been said to answer the question posed. These strategies indicate that there are indeed ways to use school systems and more importantly broader mass educational techniques to affect the population development complex. *What is clear, however, is that an overall theory or philosophy of development action is fundamental if education is to become an instrument of social change.*

What seems clear also is that within the Asian region there have been attempts to educate adults in population matters, and these attempts have not always been as successful as they might. All too often these programmes have operated outside of a framework of overall social development, with the consequent result that people have not clearly seen the benefit or trade off between a change in population behaviour and quality of life returns.

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[1] TANU. *"The Arusha Declaration"*, Dar es Salaam, Publicity Section, TANU, 1967.

We have perceived the value of a population additive in school curricula in the region. What we have failed to perceive is that schools do not exist in vacuo. The strategy of in-school population education must be related to general population policy and more importantly to overall strategies for development. Again children and youth must see, in terms meaningful to them, that the quality of life will improve attendant upon a change in population behaviour.

But let me return to the opening paragraphs of this paper. The major inference to be drawn from the strategies outlined above is simply this: If we wish to bring about an improvement in a people's quality of life, that is if we wish to foster social development, and if we wish to do this by means of educating people in the population matters which make an impact upon development, then we need to create an environment in which decision-making is possible and alternative choices are genuine. This comes first. And this we have not done.

Rural Population Growth and Migration: Can Radical Rural Educational Transformation Help Prevent the Impending Catastrophe?

I. Introduction

The nineteen-fifties and early nineteen-sixties was a period of unbridled world-wide optimism. Everywhere people became increasingly confident that the solution to the problems of poverty, ignorance, and disease, and the unsatisfactory quality of life faced by the majority of the world's population lay within man's grasp, as long as the threat of nuclear annihilation could be removed. These were the years of the economic and technological dream. The economist assumed that all problems had material causes, and showed with increasingly complicated models how theoretically all development problems could be solved with the aid of technology, whilst the technologist propagated the myth that with sufficient resources modern science and technology could provide a solution for any specific problem. Neither ever really stopped to consider the real nature of man, for they assumed that with economic development and the creation of ever more complex machines, the dissatisfaction of the mass of the population, the flagrant inequalities in the standard of life of different people and the lack of harmony between man and his environment would automatically disappear.

The first serious cracks in this dream began to appear in the mid 1960's with the realization that population growth was getting out of control, that the world's resources were not unlimited, that the biosphere did not have an endless capacity to absorb all the filth produced by industrial societies, and that all the technological and economic advances did not seem to be bringing man (even in the most "developed" countries) any closer to satisfaction and happiness.

Despite the fact that during the past few years these cracks have become increasingly wide there are still large numbers of people, isolated in their specialistic compartments, who remain complacent and believe that if we continue to do what we have been doing a little bit better, and a little more rapidly, the cracks can be closed and we can go back to our old dreams. There is however at the same time a growing group of "prophets of doom" who believe that there is nothing to be done, for the situation is out of the control of man, and the world is accelerating towards impending catastrophe.

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Though I myself share many of the fears of this latter group I do not believe that there are no solutions, and unlike the first group I do not feel that the solutions are either simple or can be found within any one particular specialist field of activity. Before we can even hope to discover the directions in which the solutions might lie, we must first be aware, accept, and understand the problems and their human and institutional causes. We must also be aware of the limits within which any future human society will have to operate so that at least we can have some idea of where our development efforts should lead us.

I certainly do not have any ready-made solution for the mass of interrelated problems that are facing the world, and more specifically the rural areas of developing countries. I do however have some ideas that I will present at the end of this paper. Nevertheless, there is one point on which I am absolutely certain; the structural and deep-rooted problems facing humanity at the present time can only be solved by structural and radical solutions. If policy makers throughout the world do not accept that the entire direction of development has to be changed then the catastrophe will be inevitable.

II. The problems

Population growth and migration are not new phenomena, for throughout man's history populations have grown, and peoples have migrated. Now however, not only are these phenomena taking place on a much larger scale than ever before, but they are occurring on a world-wide basis, and are also tending to intensify other serious contemporary problems.

For example, it has been estimated that current world population growth rates are a thousand times higher than the growth rate during the first few hundred thousand years of man's existence. Migration also is taking place on a much larger scale than ever before, with tens of millions of people in every region of the world migrating from rural areas to the towns each year. In the past migrations not only involved relatively small numbers of people (thousands, or at the most, hundreds of thousands of people), but also took place gradually. For example, Moses wandered in the wilderness with the Israelite tribes for forty years before reaching his promised land. Now however high numbers of people are migrating in a very short time, leaving their homes one day and a few days later arriving at their destinations. For example, during "the great leap forward" in China more than 10 million people a year were migrating to the towns, whilst after the cultural revolution, forced rustication of urban educated youth produced a reverse movement of more than 5 million people a year.

The growth and migration of population are not by themselves problems, it is their implications which are serious. For example, at present something like 60 percent of the world's population do not have their basic minimum needs of adequate food, housing, and medical care satisfied. As the growth rate of the population of the poorest countries is more rapid than that of the rich, and as within any country the poorer people have a higher fertility rate than the richer, by the end of this century it is quite possible that as much as 70-80 percent (depending on what steps are made to equalize the distribution of essential goods and services within countries) of the world's population will not have their basic minimum requirements satisfied.

Already, despite the green revolution, widespread famine, even with the present world population is not far off. For example, the Director General of the FAO announced at the beginning of this year that he did not see there being a great probability of *widespread famine* during the following six months, *but after that he could not be certain.* With the present population of the world doubling in the next thirty or so years, where will the food come from, particularly in the poorest countries where the people are already hungry?

Food is not the only resource that is in short supply. Quite obviously with an exponentially increasing demand for every mineral the limited amount of resources in the world will only last for a finite period. Already signs of an energy crisis are appearing as oil reserves are being exhausted. The more rapidly the world's population increases, and in particular the more rapidly urban populations increase, the sooner the world's finite mineral resources will be consumed, and the less time we will have to work out viable alternatives.

Similarly with environmental pollution (which is also increasing exponentially) the more rapidly total and particularly urban population increases, the sooner we will reach a point at which the biosphere can no longer absorb all the various types of filth produced by modern civilization and technology, and thus the less time we will have to find ways of dealing with the wastes of industrial society before they reach crisis proportions.

There has always been a gap between rich countries and poor countries, and between rich people in a particular country and the poor people, but what is different now is that with education and modern communications, the poor are becoming increasingly aware of these differences, which because of population growth and other factors are becoming wider and more apparent. Unless these inegalitarian trends can be reversed, there are likely to be social and political disturbances the like of which the world has never seen. In addition, the existence of these inter- and intra-national inequalities will effectively prevent any limits to individual materialistic consumption from ever being established. Without the imposition of such limits, there are strong arguments to suggest that within a relatively short period the world will face an insoluble economic crisis which will further speed up the process of social and political disintegration.

With population growth and migration and all its related effects, if we wait until a crisis point is reached before we start trying to apply solutions (because of the time lags inherent in most dynamic processes) things will probably get worse before they get better. For example, if tomorrow all were restricted to having only two children on average, the population in most countries would continue to increase for another 50 or 60 years. Or if the use of D.D.T. were banned, the D.D.T. content in the human body would continue to increase for a further 10 or 15 years, etc. Thus, we cannot wait for the crisis to occur before we take serious and radical action, but must take such action now to try to prevent unmanageable situations occurring, caused by rapid population growth and migration, and unlimited development through shortages of food, exhaustion of the world's resources, environmental pollution, a breakdown in the economic systems and a chain reaction of social and political disturbances.[1]

However, before we can even hope to try to find solutions to these problems, we must try to understand their causes. Though there is no single cause (for example, economic determinism), the answer must lie somewhere in the nature of man and the interaction of man with his physical, social, cultural, and economic environment.

III. Causes

Man is an animal, though a very special animal, and like all animals, is the result of several hundred million years of evolution. All animals, particularly the more evolved species (which include man), have certain instinctive drives, with these drives modified to some extent and partially controlled through learning and society.

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[1] A detailed and quantitative analysis of many of the problems discussed in this section is included in *"The Limits to Growth"* by Meadows and others, Universe Books, New York, 1972.

With man however there has not only been rapid physical evolution, but also a social evolution made possible through the invention of language. The physical and the social evolution have taken place together, mutually reinforcing each other, and increasing the survival capacity of the species, and thus the instinctive drives found in more developed species of animals almost certainly still exist in man, and are only partially controlled (and partially supported) by social factors.

The modern literature[1] on the instinctive side of man suggests that man has at least the following instinctive drives in common with closely related species:

i) Sex and reproduction
ii) Social status
iii) The need for territory
iv) Aggression

It is important to realize what instincts are inherent in man, for whilst socially and environmentally induced characteristics can be changed by changing the social and physical environment, the inherent characteristics *cannot be changed.* They must either be redirected to productive ends or suppressed continuously.

In a modern, industrialized urban society the sexual and reproductive urge is often suppressed by social morality, and economic necessity, and redirected in several relatively harmless substitute activities. The drive for social status is encouraged and expressed through the never-ending conspicuous consumption of material things, with each man desiring to "out-have" his neighbour. As far as urban man is concerned, his instinctive desire for territory is usually frustrated and has been redirected towards possessing an automobile which provides its owner with an inefficient form of transportation at high cost, but also provides him with the sensation of having a large and movable territory (which he can inspect from the safety of *his own* property); it is thus not surprising that many people spend considerably more money on their cars than they do on their homes. The aggressive drive is allowed to express itself in many ways, from cut-throat organizational infighting, through sports, movies and books, to nationally induced patriotism and even wars.

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[1] For example, Konrad Lorenz "*King Solomons Ring*"; and "*On Aggression*"; Robert Ardrey "*African Genesis*", "*The Territorial Imperative*" and the "*Social Contract*"; C.R. Carpenter "*Naturalistic Behaviour of Non-Human Primates*".

Man is not the only animal that faces population pressures, but unlike most other species does not seem to have instinctive population growth control mechanisms. For example, many species (particularly amongst birds, but also with other animals including some fish and deer) physically cannot mate unless they control enough territory to provide sufficient food for their offspring. Other species periodically commit mass suicide when their numbers become too large (for example, lemmings and certain species of American Deer). Whilst yet others become sterile in conditions of acute overcrowding (for example rats).

However, though we are not genetically endowed with instinctive methods of population control, this does not mean that in attempting to work out solutions to our population problems we can ignore our basic genetic make-up and instinctive drives. This is firstly because any policy that is consistent with our instinctive make-up has a much greater chance of success, and secondly because any policy that is not consistent with these basic drives must provide at the same time substitute outlets if it is to succeed at all.

If any stable society is to be created from positive developmental and population policies, such policies cannot ignore these four basic drives, and others that are currently being studied. For example, the need for young people to challenge the values of society during adolescence and early adulthood before being absorbed into the mainstream of society; the need for people, again particularly the young, to wander away from their "home" to seek new experiences; and perhaps also the need for continual psychological stimulation through ritualized social conflict. For though these drives can be suppressed in the majority of people-[1] research of modern psychologists (for example R.D. Laing) has shown that such suppression can lead to serious mental disturbances. Few people are eager to create a repressed and mentally unstable society.

Turning now more specifically to population problems, what are the instinctive and environmental factors that are producing the world's serious population problems, both in terms of population growth and rural-urban migration?

The desire to make love and to reproduce are two of the most basic drives existing in any bisexual species. Fortunately, the success of any population policy is not dependent upon the control of either of these two drives. With modern birth control devices, people can continue to make love when they so desire. Nor is there any reason why a woman's maternal instinct need be denied. At the moment (we have not yet reached a crisis point in world's population), it is not whether women should have children or not...that is the issue, but how many they should have. There is not indication that women have a continuing instinctive desire to have as many children as possible. The fertility rate in any traditional society is almost certainly the result of social evolution, and the development of a traditional demography which ensures that enough children are produced to maintain the "breeding group", but not so many as to destroy the harmony between man and his environment.

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[1] The experiments of *Pavlov* with dogs showed that 95% of dogs could be conditioned to act against even their most basic drives, but 5% were unconditionable. Brain washing of humans has produced similar results.

Every culture has a traditional demography that determines when people should get married, whether there should be polygamy or polyandry, how frequently women should give birth to live children, and so on. Different societies have developed different ways to ensure that (given traditional survival chances) the "breeding group" (tribe, village, or kingdom, etc.) will be maintained. For example, in many parts of West Africa, not only was polygamy the norm, with the wife, after giving birth, moving to another house and not sleeping with her husband for two years, but also twins were killed at birth. In this way population growth was kept to a minimum by reducing female fertility and preventing multiple births. In parts of East Africa, clitorectomy was the norm thus making it unpleasant for women to make love and again effectively reducing fertility. In parts of Central and South Africa, late marriages were the social norm, and homosexuality was not frowned upon.

Though these traditional demographic beliefs and social customs differ widely from culture to culture, until quite recently they all had one thing in common. They allowed different groups of people to live in reasonable balance with their environments. Thus however alien these practices might seem to modern civilized man, they could be considered to be more rational than many modern beliefs. Of course, from time to time a technological breakthrough would make the traditional demography unbalanced for a particular group and this would be followed by a period of migration and war, and after many generations of gradual social evolution, new values would develop which would restore the balance. But now virtually all traditional demographies throughout the world are out of balance, mainly through a rapid and dramatic fall in the death rate due to the introduction of a few simple medicines, but also through the rejection by modern civilization of many of the traditional values that tended to restrict fertility. Because this imbalance is worldwide and because of the existences of nations with clearly defined borders, the traditional safety valve of large-scale international (national in terms of modern borders) migration has been closed. Thus the solution to the population growth problems rests in updating, *not replacing,* the traditional demography (which has other important social functions besides fertility control) rapidly, so that it is consistent with the realities of the present situation.

The traditional demography was successful insofar as it enabled each woman to produce slightly more than two children who would survive until reproductive age. Now it enables each woman to produce many more than these two children. In time the traditional demography will readjust to the realities of the present situation, but the process of social evolution is such that it takes no account of individuals. Instead, the changes take place gradually through generations of starvation, a breakdown of the existing social order, and wars. With such a process, many individuals die unnecessary deaths, many societies disappear, and only the fittest survive. In other words, the social evolution of millenia will not change by itself in a few short years, and as such a change is needed, drastic measures will have to be applied.

Thus, if population is to be controlled by man humanistically instead of by war, natural catastrophes, or a complete breakdown in the social order, immediate and drastic measures will have to be taken. All national policies, from education through employment to taxation, should be designed to change the particular traditional attitudes which would need to be altered if population equilibrium is to be restored. It is absolutely essential that the present inconsistencies in government activities are changed. For example, at present mass media campaigns might be directed towards family size control, but at the same time, taxation and school financing encourage large families. In addition the efforts must be concentrated on those groups of the people with whom rapid population growth produces the most detrimental side effects, i.e., those who are already very poor. At present, most efforts at family size control have much greater impact on those who need to limit their number of children least, i.e., modern sector families.

Only in the poorest areas of developing countries is population growth and the resulting poverty one of the prime causes of rural-urban migration. In other areas, the problem is much more deep-rooted, and is partly caused by a modernization and redirection of instinctive drives, and partly caused by changes in the social-cultural, economic, and educational environment.

On the instinctive side, with the expansion of an individual's geographical horizons, it is difficult for him to find his identity in his traditional society, particularly as this society is disintegrating. Similarly, new methods of achieving social status are replacing the traditional methods as the values of modern society spread to the rural areas; for example, success in the school system is becoming more important than hunting prowess, western dress more a boost to status than dancing ability, and materialistic possessions more important than community involvement. Most important of all the ways of achieving status is where the person has been successful outside his "home" (or claimed to have been successful). Someone who has shown his ability on a world scale (i.e. studied overseas) has the highest status, followed by those who live in the capital, followed by those who live in other big towns, with those left behind in the village having an increasingly low status.

Where the younger children of large families do not inherit or own land, or where the land ownership system does not enable individuals to feel that the land belongs to them, such conditions are also an inducement to migration, for without the pull of a territory there is little incentive to stay in a rural area.

Though the close knit extended family has always existed in most traditional societies, in the past, before the advent of modern communications, there was no way in which the young people could escape from the claustrophobic atmosphere and assert their independence. Now of course, they can leave and go to the towns. In addition many societies had complex initiation ceremonies which had the effect of reinforcing the values of the society on the instinctively protesting adolescents, but increasingly these initiation ceremonies (which often are very similar to modern brainwashing techniques) are being stopped, thus leaving no way of bringing the young back into the mainstream of traditional society.

Finally, the urban environment is particularly attractive as it can provide much greater psychological stimulation than the rural environment, and at the same time provide more outlet for instinctive aggressive drives. If someone wants peace and quiet, he is likely to remain in the rural areas. If he wants excitement and action, he must go to the towns. Social-biological research suggests that in many species of animals, including man, there is an inherent need, particularly amongst the young, for excitement and action.

Obviously all these instinctive drives are only able to find new methods of expression (through rural-urban migration) because of the disintegration of traditional society and values. A large number of factors are all tending to speed up the destruction of these values, thus negating the mechanisms for controlling and redirecting instinctive drives for the "social good" developed over several centuries of social evolution.

Of the factors that are producing this disintegration, the school system is central. The following are some of the ways in which the rural school tends to help destroy rural society without producing any viable and workable alternative:

1) It teaches children that their success in life depends on their "intelligence" and hard work in school, and is not dependent on any of the traditional social status attributing mechanisms (birth, community service, etc.).

2) It teaches children that academic work is something to be respected, and rewarded, and physical work is something that only unfortunate failures have to undertake.

3) It teaches children that if they want to be successful, they have to get out of their community.

4) It teaches children that the problems faced by their parents and their community are not important, and do not deserve serious attention.

5) It teaches children that the symbols of development are more important than real development.

6) It teaches children to rely on "outsiders" for the solution to problems, and destroys any self-confidence that the community has of their ability to solve their own problems.

7) Finally and most seriously, it creates aspirations and expectations that for the majority can never be achieved, and thus leads to frustration and a feeling of personal failure amongst most rural people.

Most of these "messages" are of course not the conscious expression of the objectives of rural education, but are the "hidden messages" of the structure of the present educational system, and its interaction with other modern sector social and economic influences. What is most worrying, however, is that most of these messages are either untrue, or counter-productive for rural development and harmony.

For example, though the school system says that social and materialistic status is dependent on ability and hard work, in fact the child from rural areas has an infinitesimal chance of reaching the top levels of education (let alone the top positions in society) compared with his middle class urban brothers. In Thailand only about 6 per cent of university students come from peasant family backgrounds.

The child learns not only from school that non-physical work is rewarded, but also from the government personnel in his village (teachers, agricultural officers, policemen, etc.), all of whom do not usually do physical work, and who nevertheless have higher incomes, greater power, and often also higher status than the mass of the population of the village. In addition, the mass media continuously emphasize the high material and social status of desk-bound bureaucrats.

Because the education system is a continuum, with what is being taught bearing little relevance to local conditions, the student soon learns that its only function is to prepare him for the next higher level of education, which inevitably means education outside his community. Thus it automatically leads to an alienation of the child from his community. Instead of teaching children and adults to co-operate and work together to try to solve community problems it teaches them to compete in the school lottery (with its own irrelevant rules) through repeating the words of the teacher more accurately than anyone else. Those who succeed in rural schools, and are rewarded, are neither those who think most for themselves, nor those who are most concerned with their community problems, but are those who are most prepared to cut themselves off from reality, and to repeat accurately things that they don't understand. Thus the school encourages a conformity to outside values that are not really understood, and thus encourages a craving after the symbols of development without any real development. It is not surprising therefore that the villages of Thailand (and Asia) are full of school dropouts, who are unprepared to work on the land, who look down on their parents and community, who dress in western clothes, and who are merely marking time waiting either for the opportunity of a job in an urban area, or for the courage to move to the towns to look for a job. Throughout the rural areas of Asia these youths can be seen, spending their time on railway stations watching the trains go by, waiting outside cinemas, listening to the latest songs on the radio, and trying at least to fulfil the symbols of status (western dress, no manual work, lack of respect for traditional institutions, knowledge of many different types of material consumption items, etc.), that they learn from the school, the mass media, the example of their leaders, and of government officials.

As communications are opened up, so rural people become increasingly aware of the gross inequalities that exist in every society. Why should they spend long hours every day struggling to produce just enough to keep themselves alive, when those in the urban areas who have passed through the educational system only have to work short hours to have all the material things, which according to the advertisements bring instant happiness and satisfaction.

Just at the time when the adolescent is most susceptible to brainwashing influences that will permanently affect his lifelong outlook, his parents tell him to work hard in school to get out of the village, the school tells him that the village's problems are "not important", and the mass media create demands for material things that can only be obtained outside his community.

The promises of the school cannot however be achieved. Only a very small proportion of those children who are filled with a longing for a materialistic and modern lifestyle can ever make it to the top levels of education. Increasingly now, only a small proportion of those who make it to the top level of education get the type of job or the things they hoped to get. Though of course when they return to their village on visits, in order to enhance their status, they make their urban lives sound fantastic. The school therefore creates aspirations that cannot be achieved for the majority, and thus turns the majority of people into "failures". Rather than remaining as failures in their village amongst their friends, anyone with courage and ambition (just the people who are needed for the development of the community) is likely to move to the anonymity of an urban area to try their luck (at least then they can claim to be successful).

I am not saying that the education system is the only instrument producing counter-productive rural-urban migration, but it does occupy a central position in this migration, reinforcing all the other influences such as the inequalities in income between rural and urban areas, the boring and backbreaking nature of farm work and the small rewards this work produces, the colonial relationship of rural areas to the urban areas, the frustration produced by corrupt and insensitive government officials, the deterritorialisation caused by land shortages or by the concentration of the land in a few hands, etc. If education did not carry the message that social status and wealth depended on the student's ability, and his hard work in academic subjects, but instead tried to modify the existing traditional order so that youth could find status in their own community, then the problem would not be solved (the solution can only be found through a complete transformation of the values of modern society; with rewards, both social and economic, going as much to rural people as urban desk-workers), but it would at least be considerably reduced.

IV. The direction of change needed

I spent some time at the beginning of this paper discussing the infeasibility of present development strategies, because the design of any new rural educational system cannot just aim to solve certain short-term problems in a basically rotten system rushing headlong into its own inevitable destruction, but must aim at producing the necessary preconditions for a society that has the chances of long-term viability.

A society aiming for never ending growth, never ending urbanization, and never ending consumption of material things will inevitably collapse. A society which places increasing emphasis on technology, efficiency, large-scale operations, and specialization will not be able to provide individuals with meaningful and satisfying roles to play. Thus a rural educational system should not just be designed as a temporary solution filling the gap until the rural populations are able to join in the materialistic, technological dream. It should aim at creating an environment, a culture, and a society in the rural areas that can satisfy the basic needs, and the basic instinctive drives of man. Rural development should thus provide not just a second-best and bearable society, but an environment which in the long run is more likely to produce happiness and satisfaction than existing materialistic, technological urban societies. Only if this can be done can rural-urban migration be reversed, and the growth-production mania stopped before it destroys the institutions on which it is founded.

In designing any new rural development strategy it is necessary to have at least some idea of some of the basic necessities of any viable society, and in order to do this, it is necessary to have some idea of the underlying nature of man, including the most important of his instinctive drives.

Any realistic development strategy should have at least the following characteristics:

1) It should aim to solve problems that are causing people suffering and dissatisfaction, not at maximizing various meaningless indicators.

2) It should only allow the exploitation of technology where the scale of operation does not preclude each individual involved having a meaningful role to play, and where in the long term that technology can be shown to be for the social good.

3) It should create a society where each individual has a way of asserting his identity (through pride in his community for example); which has meaningful and socially productive ways of attributing social status; which provides roots for all individuals, and a sense of territorial belonging (this could be done with territorial substitutes); which provides psychological stimulation and challenges; and which creates non-destructive outlets for aggression, the desire for power, and the sexual and reproductive drives.

4) Finally, it should not be built on the continuous creation of new and unsatisfiable desires for materialistic things, but should instead encourage the development of the spiritual side of man, and the satisfaction of existing (though often dormant) spiritual desires.

Education in its broadest sense involves the transmission of relevant skills, knowledge, attitudes and ideas, through a participatory process between teacher and learner, so that the individual is better able to cope with the realities of his environment, and live a happy and satisfied life. Such education obviously must occupy an absolutely central role in any development strategy, for eventually the solution to all problems, and the creation of a new society, depend on what each individual man does.

In designing any development-oriented educational process, it should be realized that the existing society, and its institutions (e.g. radio and T.V.), and the existing physical environment, have a continuous lifelong impact. Thus, if any formalized educational process is to have a real impact in changing the direction of social, cultural, and individual development it cannot be a "one-shot" affair (virtually all formal education schemes cover a finite time period), but must provide lifelong learning and teaching experience for the members of the community in which it is situated.

Obviously, before designing any new rural educational process, one not only has to study in depth what is wrong with existing rural education systems, but also the experiments that have been carried out in other countries in order to achieve similar objectives. As I have written on these topics elsewhere[1], I will not discuss these two very important issues here.

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[1] For example in *"The Need for Educational Transformation; from the Marginal to the Utopian"* and in *"Education for Rural Development: The Attempts of Many Countries"*.

Meaningful rural development can only take place if the present compartmentalization of development activities (amongst half a dozen or more different agencies) is replaced with a co-ordinated approach centred around educational activity in the community. The process should be centred on educational action, for all development is dependent either on changing people so that they are more in harmony with their environment, or on changing people so that they can change their environment so that it is more in harmony with their basic needs. In both cases, people's attitudes, ideas, skills, and knowledge must be changed, and thus educational action is absolutely essential. It should be centred on the community, and to some extent isolate each community from each other, so that individuals are given a feeling of identity, belonging, involvement, and pride, and so that the dominant social structure becomes community centred (thus preventing migration for status reasons).

In order that the new education process really produces such a feeling of community identity and pride, it:

1) Should involve adults as well as children in a lifelong process of teaching and learning.

2) Should have a curriculum and activities designed mainly by members of the community in order to solve the most pressing problems of the community.

3) Should involve all participants in physical work as much as mental academic work, so that the products of the system are not alienated from the inevitable activities of their community.

4) Should not use ordinary "teachers" but should use, on a full or part time basis, members of the community, each trained for a short time in the solution of one of the problems facing the community. These new teachers *should not* be products of formal secondary and higher education as people from such academic elitist institutions cannot but help carry a message inconsistent with community harmony and pride. The selection of the teachers from the community could in fact develop into a new socially productive way of attributing social status within the community setting.

5) Should be designed not only so that it shows people how they can improve their quality of life and satisfaction by staying in the rural areas, but also by its very existence should make rural life more stimulating and attractive.

6) Should at least be partially financed and supported by the community.

Obviously, however, any new system, though aiming to develop the community, and make people feel that their existence and satisfaction centres around their community, cannot ignore the nation, the need for some inter-community communication and even migration, and the fact that central and local governments not only must provide many of the resources needed for rural development, but also many of the new ideas needed to solve existing problems. Therefore, the system in the community must be a part of a larger national system. Thus:

1) There should be a special cycle of compensatory education, to prepare *a few* individuals for effective competition in further secondary and higher education. This compensatory cycle should not insist on any specific achievements from the students from community schools, but should take the children from where they are, and give them the skills necessary for them to cope with further modern sector orientated education.

2) Section for this compensatory cycle should not be on the basis of examinations (which inevitably emphasize the importance of academic and literary skills), but should be on the basis of other criteria such as participation in community activities, responsibility, and achievement in verbal non-learnable aptitude tests.

3) Government should provide financial assistance for any new scheme at least to the extent it is presently supporting rural elementary education. It should train the new teachers, and frequently offer retraining in the changing problem areas. It should help elaborate curricula, organize systems of technical assistance for the community schools, and ensure that the mass media and advertisers do not create aspirations and expectations that can never be achieved.

Though any new process should primarily be an educational process, it need not necessarily be anything like the schools that exist at present. For example:

1) Adults will participate as much as children.

2) There need be no fixed "class size." Sometimes the "teachers" might give advice to one person on one problem (for example, whether to take birth pills or have an I.U.D. fitted). At other

times, they might be working with a small group on a particular project (for example, the relationship between infant and maternal mortality, and the spacing between births), and at other times might discuss a given problem with the whole community.

3) Most activities need not take place within the four walls of a classroom, but can take place anywhere in the community, using the rich educational environment that exists in every community.

4) The teaching of literacy skills is not a necessary part of the process. Only where the environment is literary, and where people want to learn to read and write should high priority be attached to literacy training. If the government feels that literacy is essential then before literacy is taught the environment should be made literary, and the people motivated to want to read and write.

5) As already mentioned the teachers should not be traditional teachers, but should be community members, each trained in one particular skill (for example, why family planning is necessary for the community, and how can births be prevented?) of direct relevance to the problems of the community.

Obviously with the above guidelines a large number of different types of community centred educational programmes could be designed, for there are many questions relating to the design of a new system which cannot be answered at present.

Certainly there is no one ideal system, but a large number of possible alternatives, some more suitable for some societies and cultures, and some for others. Thus in designing any new system for implementation there are three further basic criteria:

1) The system should be as flexible as possible, so that it can be relatively easily redirected if it appears to be going in the wrong way.

2) At the outset automatic evaluation procedures should be built into the design of the new system or systems, both so that mistakes can quickly be identified and corrected, and also so that many of the unanswered questions we have about the educational process can in fact be answered.

3) The new system must be realistic (though not pessimistically conservative) and must take account of the existing realities, both educational and other.

This last point is very important. In turning the theory of the previous pages into implementable practice many compromises will have to be made with the existing situation. None of us are working in "virgin societies" with no schools, no unfulfillable aspirations, no disintegrating social structure and no political hierarchy often blinded to the real problems. Thus none of us will ever have a chance of implementing an "ideal system" even if such an ideal existed (which it probably does not). All we can do is remain continuously conscious of the direction in which we want to move.

In the final section of this paper I will outline one community centred educational system which might be feasible in certain circumstances. It is designed to help solve the problems of the rural areas, to reduce rural-urban migration (thus freeing increasing resources for rural development), and to create community pride and identity. As it is a proposal designed to be implementable, it does not meet all my theoretical criteria, for many compromises with reality have had to be made. It should also be emphasized that this is only one of many alternatives, and that I am describing this alternative merely to show in concrete terms the type of scheme that might be developed to achieve some of the objectives I have outlined above.

V. One alternative

In most educational systems, the lower levels have to adjust their activities so that their graduates will meet the intake requirements of the higher levels. Thus in virtually all cases the system does not really benefit the masses who participate for only a few years, but only really benefits the minority who go on to further education. In the scheme outlined below, however, it has been assumed that it should be designed entirely to meet the real needs of the mass of the population that will participate. It is considered that it is the job of the further education system to make the necessary adjustments in their programmes so that they can effectively operate with the few continuing beyond mass education. They should no longer expect a product designed to meet their partisan needs.

In order that the children from the new rural community centred system have a chance to compete with children from urban elementary schools (which inevitably will offer an education more suited to the intake requirements of further education) a special compensatory cycle will have to be developed. This compensatory cycle would admit just the number of children from rural areas who could be expected to succeed in further education, and find modern sector employment in either the rural or urban areas. It should concentrate entirely on preparing rural children with whatever skills and knowledge they got from the community school for effective competition in further education. It is likely that by the time the rural child has to compete with his urban counterpart, he will have had one or two years more education. The compensatory cycle need not be of the same length in all parts of the country. In certain more developed rural areas where the curriculum of the rural community school is not too different from that of urban schools the compensatory cycle could be relatively short whilst in really remote and depressed areas the compensatory cycle should be relatively long. Thus instead of having a unitary educational system, the structure would vary from area to area, depending on the needs.

For every fifty or so schools in each locality (see below) there should be at least two compensatory schools, preferably situated in urban areas and not associated to any particular community. These schools would in general be copies of the schools in the towns except that they should be better equipped, and have higher paid staff than urban schools. The curriculum should concentrate on improving language, literacy and numerical skills, and on familiarizing the children with the complexities of the modern sector, increasing their role expectations and their self-confidence.

The intake into these compensatory schools would be absolutely limited, and only those rural children who passed through the compensatory cycle would be able to continue their education. Thus this cycle would be a *barrier* isolating the rural community-centred system from the urban, modern sector oriented system, and also preventing excessive migration for educational reasons, and discouraging rural-urban migration in general. Selection of the small proportion of children going into the compensatory cycle would be on the basis of participation in community activities, social responsibility, and performance in verbal aptitude tests.

The existence of such a barrier is absolutely essential for the success of any attempt at ruralizing rural education. Without the barrier "teachers" will be pressured to teach for the intake requirements of further (modern sector) education, as a slight chance of a first prize in a national lottery is more attractive than the certainty of a consolation prize.

Returning now to my basic proposal in its broader terms, the scheme for mass rural education being suggested involves the establishment of a community centre (actually situated in the centre of a community, both geographically and spiritually) to replace the existing elementary school. The centre will have four basic functions. First, it will be used for certain periods of the day as a school, with a relevant, not an academic curriculum. Secondly, it will be used as a place from which extension advice will be given in, for example, agriculture, hygiene, nutrition and family planning, or on whatever problems are considered most important both by the community and by the government. Thirdly, it will be used as a place from which practically oriented adult education courses will be given. Finally, it is hoped that it will really be able to act as the centre of the community, with people going to the centre to meet their friends, read newspapers or books (if they are literate) or listen to tapes and the radio, plan joint activities, form clubs and so on.

There would be no universality throughout the country of curriculum or even in the fields of study to be covered in any centre (for children, adults, and for the extension services) but these would be decided on the basis of a detailed in-depth survey of the major problems facing a particular locality (10-15 kms. in radius) in which both local community members and trained community development workers would participate. It is possible, however, that problems of universal importance might be identified, and thus covered by every centre. For example, there might be a need to change traditional demographic concepts and introduce family planning ideas in all parts of a country.

Four or five people would be employed in each centre, as "teachers" or "agents of change", and the particular skills that these people would have would be determined on the basis of the priority problems identified in the survey. For example, in one locality there might be an agricultural worker, a co-operative organizer, a nutritionalist and health adviser, a fisheries worker, and a family planning mobilizer. In another locality there might be a veterinarian, a medical assistant, two literacy workers, and a family planning mobilizer. Even if the titles of the personnel are the same in different localities, they might have slightly different fields of interest and functions, since as much as possible the training given to these people would be designed to equip them for solving specific priority problems in a particular locality.

As it generally proves very difficult in any country to get products of secondary and higher education to remain in rural areas, and if they do it is not usually by choice (and thus they are unlikely to be motivated), at least half the staff of each centre should be chosen from existing progressive elements within the community. This is also likely to encourage greater community involvement in the centre than if all the employees were outsiders. These people, once chosen, would be given one or two years practical training in one of the most important problem areas identified for that particular locality. Another alternative would be to employ a larger number of community members on a part time basis, and not to give them long-term training which would prevent them carrying out their normal activities, but to give them two or three months training a year during the dry season for two or three years.

Each locality (of 10-15 kms. radius) would contain about 50 separate communities (in sparsely populated areas a large radius and a smaller number of communities would have to be aimed for), and at the geographical centre of the locality would be established a group of five or more supervisors (one in each of the specialties catered for in the community centres), and also a short range radio transmitter which would be used both as a supervision aid, and as a tool for interesting the population in their locality, and drawing attention to individual and community successes within the locality, thus giving local residents some idea of what really can be done.

Children would participate in the activities of the centre each morning for four or five hours (say from 7 a.m. to mid-day). The age that they would start and the number of years they would participate for would obviously vary from country to country, and depend on the resources available and other factors; however ideally children should start as late as possible (perhaps not until they are seven or eight years old), and they should continue for at least four or five years. There would only be a small amount of classroom instruction, with the emphasis of the programme being on practical involvement in the activities of the community, experimentation, and discussion. In other words, the curriculum would be organized on a project or problem solving basis. For example, the children might work in groups with different farmers, discuss the variety of methods used and the consequent differences in yields, and carry out various experiments to prove specific theoretical concepts (e.g. the effects of using organic fertilizers, new seed varieties, irrigation). The school day would not be divided into periods as is presently the case, but most of one morning, or even most of a week or a month, might be devoted (for one group of children) to a particular subject.

Literacy classes would not be given unless there was already an adequate supply of simple entertaining and informative reading materials available in the locality. Again only part of the literacy training would take place in a classroom situation with the other part devoted to literalizing the environment (labelling everything in the community, e.g. putting a sign on each tree with the name of the tree, children stitching their names on their shirts, hanging signs round animals necks), and explaining and demonstrating the need for literacy. Thus the main efforts on literacy would be devoted firstly to making the children and the adults aware of written symbols, and secondly on motivating them to learn the meaning of the symbols. Only when the majority of children in a particular group are motivated and aware would a concentrated attempt be made to teach them the actual skills of reading and writing.

Children would not necessarily be divided into groups according to the length of time they had participated in the system, and certainly whatever method is chosen the children in their final year should not form a separate group, but should be divided for a large portion of their school day amongst the other groups so that they could assist the "teachers" or "agents of change" with the other children. Selection of those who might proceed to further education should certainly at least be partly dependent on a child's success in this activity.

After lunch the staff of the centre would be available at the centre either to provide extension advice (in the case of agricultural workers) or to carry out particular services (in the case of family planning mobilizers, medical assistants and literacy workers). For example, the agricultural worker might provide advice on what quantities of fertilizers should be used, what seeds should be used, what is the best way to plant a particular crop and so on. The family planning mobilizer might discuss with individual women, advise them on particular methods, and fit them with IUD's or give them contraceptive pills. The medical assistant might use one room in the centre for examining patients, diagnosing, and prescribing medicines. Finally, the literacy worker might read and write letters for illiterates, help people fill up application forms, advise people on what they could read, and perhaps also give special courses to children (or adults) who are motivated to read but are still having reading problems.

From time to time in the evenings special courses might be held for adults by the "agents of change" at the community centre. These might be held in conjunction with a radio programme from the locality centre, either based on a particular success story from one community, or as part of a centralized campaign to solve a particular problem, or might be held on the "agent of change's" or the community's own initiative. Such courses would obviously involve discussion and dialogue, as is done for example with the Indian radio clubs, as well as an examination of some of the experiments being carried out by the children. Literacy classes for adults might also be undertaken if a sufficient number of adults expressed an interest in such courses. Texts either prepared by the literacy worker or by the children might be used in such courses, so that the relevance of what is being read would automatically be apparent to the adults.

These periodical evening classes for adults would only be likely to be successful if the "school" or community centre or whatever the institution is called really does become a centre for the community where people of all ages and both sexes gather to gossip, to discuss, to read, to listen to the local radio and prerecorded tapes (and even to record tapes to send to the local radio for possible transmission) and to drink tea or beer (depending on local customs). Only if the centre is situated in a central and convenient location, and provides facilities and activities that attract the local inhabitants, is the whole scheme likely to succeed. Unless the centre is *seen* by community members as belonging to them and serving their interests, it will soon become an alien institution and like most alien institutions will be likely to have as many negative as positive aspects.

This alternative involving the isolation of rural educational programmes from the modern-sector-oriented further educational system, and the creation of community centred educational institutes, staffed mainly with community members and concentrating on providing the skills and knowledge needed to solve specific problems for both adults and children, though not specifically designed to solve problems of migration and population growth is likely to have a significant impact. This is firstly because in most rural areas one of the most common problems needing solution is likely to be that of high fertility and rapid population growth, thus in most villages there will be a community member trained not only to teach people why they should limit their family size, but also trained to prescribe birth pills and fit IUD's. Secondly, because the existence of a problem solving, community centred educational process is not only likely to significantly improve the quality of life of rural people, but is also likely to increase their pride in their community, thus reducing the pressures for rural-urban migration. And thirdly, because of the fact that only the limited number of students who go to the compensatory cycle will be able to study further, elementary education will cease to carry the hidden message that schooling is a continuous process leading from the rural areas to eventual modern sector employment, and in addition large numbers of students will no longer be able to migrate to urban areas to seek further educational opportunities.

Obviously, a large number of operational and administrative problems will be faced in implementing a scheme such as the one outlined above.[1] It will almost certainly not be possible to implement such a scheme throughout a country in a short period of time, and thus it should be started first in the most backward rural regions, where the present formal system is least useful, and where the population and other problems are most serious.

VI. Conclusion

The alternative described above certainly involves a radical departure from most existing educational systems in terms of objectives, structure, participants, teachers, curricula, and administration. However, if we are to produce a society that has some chance of survival we have to break away from the constraints of the past, and if we are to create an educational system which:

1) Takes account of, and gives scope for the expression of the basic nature of man;

2) Is a powerful tool for the achievement of realistic development objectives;

3) Will play an active role in reducing population growth, and rural-urban migration;

4) Will give all citizens a chance of playing a significant role in the affairs of the nation;

5) Is feasible and implementable;

we cannot just tinker with existing systems and make marginal changes, but must have a radical transformation. The above alternative is only one of many possible schemes, all of which will have at least one thing in common - they will involve a complete change in existing rural educational practices, and thus they will require a high degree of political motivation and support if they are to have any chance of success. Though other alternative schemes will differ in detail, if they are to fulfil the five criteria mentioned above they are likely to share many of the following basic characteristics of the scheme I have outlined:

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[1] These problems and the operational steps that would need to take place in implementation are described in my *"A scheme for Improving the Quality of Rural Life through Community Centred Education"*.

1) *Rural-Urban Continuum:* If a rural system is to be designed to meet the needs of the rural areas, it must be separated from the modern sector system. However, opportunity for progress into elite positions cannot be denied to rural children, thus after completing their rural education a few children (no more than could find places in secondary schools) should be admitted to a special compensatory cycle designed specifically to prepare rural children to compete in further education.

2) *Institutional:* After the result of a careful survey, a community centre should be established in a central and convenient location. This centre would either use the existing school premises or replace the school. It should be open all the year round all day and in the evenings also.

3) *Employees:* Each centre should employ at least four or five "agents of change" or "teachers". Each of these would have skills designed to be useful for solving the most crucial problems facing the community. Wherever possible, these "agents of change" should be drawn from the members of the community and given one or two years specialist training in specific subjects to build on their traditional background and skills in the same subject.

4) *Participants:* In the morning for four or five hours the "agents of change" should work with children (the children would spend at least five years participating in the activities of the centre on a half-time basis). In the afternoon any community member could go to the centre either to receive extension advice, or for particular services (letter writing, I.U.D. fitting, curing certain illnesses). In the evening, the centre would be opened as a meeting place for all community members. Reading, radio and tape ,listening, and drinking facilities might be available, and in addition, certain special adult courses might take place.

5) *Curriculum:* The precise problems that would be dealt with in any community should be decided on the basis of a survey to be carried out prior to establishing the centre. Very little emphasis would be placed on ordinary classroom work, but the concentration would be on practical work, experimentation and discussion. If literacy is to be taught, very great emphasis should be placed on making the community a literary environment, and on motivating people to want to become literate.

6) *Organization and Supervision:* For each fifty or so community centres there should be one central supervision centre with five or more

supervisors who would visit the centres with reasonable frequency. There could also be a short range radio transmitter which would be used for broadcasting certain prerecorded tapes of general interest, for mounting specific campaigns, and suggesting particular action to the centres, and for developing a high level of interest and pride in the locality and, more particularly, in the achievements of individuals and communities within the locality.

As only slightly more than the present number of teachers need be employed in any new scheme, and some of those could be paid less than present teachers, the costs of such alternatives will not be much higher than the costs of the present system, and the returns, in terms of increased rural productivity and satisfaction and reduced pressure for expanding secondary and higher education, will be very much higher.

Only if the developing countries really design an educational system to meet *their* needs, to solve *their* problems, and to help create a potentially satisfied society, will they be able to avoid the pitfalls that the developed countries are rushing headlong into after decades of struggle. The future of humanity depends on what happens to people's attitudes and ideas, and these in turn are largely dependent on the type of education (in its broadest sense) they are receiving. Surely we should use the massive resources that are available for education to try and solve some of the myriads of problems facing individuals and society, instead of using them to expand an already decaying system, whose very expansion is likely to speed up the disintegration of society.

Rural Exodus and Growth of Shantytowns: An Asian Educational Alternative?

Almost everywhere, attempts have been made to set up an educational system which would be valid for all geographical zones, all human groups and all situations: but, in a number of Asian countries, the results obtained by uniform and undifferentiated educational curricula have failed to live up to expectation.

Thus we have to see whether there exist - in relation to the zone, the human group, the economic and social situation - educational priorities, and how they could be taken into account.

The starting point, then, would no longer be an abstract culture, more or less encyclopedic and universal, but a milieu to be transformed; training would become inseparable from development action.

I. Some characteristics of migration departure and arrival zones Rural exodus

It is true that there are various economic and social causes underlying the migratory flows which originate in the Asian countryside. But it can frequently be observed in these areas that conventional education does not provide children with sufficient means to understand and develop their environment. On the contrary, the school often accelerates the rural exodus.

The action of administrative service centres in rural areas to limit out-migration and ensure real development has not been very successful. Consequently, many experts and researchers have come to think that it is futile to expect a far reaching development of Asian rural areas unless the peasant groups themselves undertake it. But what training should be envisaged to achieve this?

Only in a few countries has migration been organized on a large scale, and in still fewer has specific training been given to those migrating: usually, educational efforts have been unrelated to the situation of the migrants. Would it not have been possible to design a type of training for migrants leading both to a greater awakening of the mind

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and to the practical adaptation to new ecological and human environments?

Urban growth and disparities

Rapid urban growth, an increasing gap between the number of those looking for work and the job opportunities in modern activities, the extension of slums, shantytowns, old, overpopulated and dilapidated districts, are characteristic of most of the large Asian towns.

Not only is the overall situation often a cause for concern but serious internal urban disparities are to be found - which often tend to become worse. Almost everywhere there are significant inequalities between wards as regards demographic structure, occupational structure, employment, incomes, infrastructure, educational level, health, etc.

Unequal geographic distribution of illiteracy in Hong Kong

	Hong Kong Island	Kowloon and New Kowloon	Tsuen Wan	New Territories	Marine	All Areas
1. Age 10-34:						
- Males	2.1%	2.7%	5.3%	4.7%	57.2%	4.5%
- Females	7.4%	10.3%	16.8%	22.6%	82.4%	12.8%
2. Age 35 and over:						
- Males	9.5%	10.4%	16.5%	20.5%	77.4%	13.0%
- Females	56.2%	58.9%	68.6%	77.7%	97.9%	60.9%
3. All Ages:	18.5%	19.3%	23.8%	31.6%	75.3%	21.7%

Source: Hong Kong Government, 1966, By-Census Report, and David Podmore, 1971

Even if the economy is expanding and the whole population can be easily reached because it is gathered within a small radius, there remain large educational disparities - as can be seen in the above table.

The most striking differences between wards occur with respect to town planning and housing. In Bombay, for instance, there are shantytowns nestling in the heart of the city wherever a little land is still available, and formerly respectable districts are turning into slums. [1] In Hong Kong – not to speak of the sampans – the zones where the housing is the most dilapidated are usually also those with the highest density.

Although the authorities of the various countries have made many efforts to try and solve what is called the shantytown problem, there are doubtless various reasons for their only limited and partial success. The first reason lies in the illusion that the "beautiful town," the one being planned and built and administered in Western fashion, will rapidly spread and that the shantytowns will be absorbed: this is a mistake and the fact is that in many Asian towns it is the precarious housing which spreads more rapidly than the modern urban infrastructure. Similarly, it is a mistake to think that the "makeshift" economic activities are going to be regularized within a few years – whereas they constitute the mode of life and survival of a large proportion of the urban population.

Another problem is the provision of really cheap housing which is within financial reach of the majority of the inhabitants of the shantytowns. Even in Tokyo, the infrastructure of certain wards leaves much to be desired, and in the income bracket 40-60 Yen per month between one-third and one-half of the families live in rented wooden shacks. [2]

If a country as developed as Japan has not yet been able to solve the problem it is not surprising that, for poorer countries, some people have come to doubt the very possibility of providing the under-privileged strata with acceptable housing. [3]

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1. The progression of the density in some Bombay wards is rather significant:

Density per Acre (40 Acres)

	1931	1941	1951	1961	Pop. in 1961
Bhuleswar	812	640	1.366	1.520	65.681
Market	473	421	673	1.714	58.399

2. see Masahiko Honjo. "L'Urbanization en Asie: Dualisme dans le Developpement". In *Texte de la Conference de Revohot*, August 1971. mimeo.

3. In Calcutta, the minimum cost of popular housing is estimated at Rs. 8,000 which corresponds to a monthly repayment of 109 rupees for 10 years. Now, an estimate of the income distribution of families in the metropolitan district of Calcutta shows that even if the building cost were halved, and hence also the monthly payments, these houses would still be beyond the means of two-thirds of all families.

We are thus faced with an objective need for training, first in order to extend the ability to innovate and secondly to reinforce the professional skills needed for the supply of goods and services demanded by the popular urban strata, and, in particular, everything connected with the physical planning and functioning of the wards as well as with the improvement of the housing and its environment.

Both in the urban and rural areas it would certainly seem that it is through the action of the population itself that development must be expected. But the conventional school often seems incapable of meeting priority needs or of fitting into the development prospects of the various groups of the population in their particular environment.

What alternatives could be envisaged?

II. To face the specific problems of departure and arrival zones: an educational alternative

What should the alternative be based on?

Although the need for an educational alternative no longer has to be proved, its profile, its characteristics, are not easy to define.

We may perhaps venture to outline a comparison:

	The Present "Solution"	**An Alternative**
Structure	conventional standardized (the school)	varies locally (function of groups, age grades, communities ...)
Curriculum	decided in the ministries	decided by those concerned
Basic tool	the book	workshops
Financing	costly, borne by the State	cheap, mainly borne by those concerned
Use of products	bureaucratic jobs, urban unemployment	improvements and production at local level (rural or urban)

This means that the possible alternative makes use both of the community, development movement ("animation") and of technological education, provided that the latter is given its true significance in the context of Asian under-development. It should penetrate and impregnate the various methods of training and information, provide support for administrative action and be a vector of development.

There is no lack of sketches of an educational alternative of this type, and in many Asian countries one feels that there is a certain convergence of anxiety and of research. We must stop gluing our eyes to the textbooks and to the conventional school and *simply look, in each place, at what the population needs to know*. That is the fundamental question. They do not need to know either the metamorphoses of the frog, or the so-called basic concepts as invented in the educational planning offices. What they need to know first of all, and what they want to know, is what can lead them out of their under-development, their difficulties of today, tomorrow and the next few years. Start with the essential problems of each zone and the development prospects - that is a clear guideline for training.

The profile of an alternative

In trying to design a method of training which will not be liable to the reproaches levied at the conventional educational system it is important to concentrate on a single, dominant problem of a given zone, leaving aside, in the initial phase, many interesting but secondary aspects. In sub-arid zones, for instance, efforts are needed to improve the breed of cattle, or pest-control to improve the quality of hides for marketing. But such actions would be meaningless if they were not first considered in terms of basic dominant constraints such as shortage of water. Similarly, in most cities, it is important to construct sewers but the most important effort should be to provide jobs and shelter for the masses. Depending on the case, priority should be given to one or the other. Although this requirement may seem rather simplistic, *it is essential to focus sensitization, training and development action on a major theme* which, although possibly not definitive, appears essential for, let us say, a decade, after which another theme may be given priority.

Identifying the essential needs of a zone requires careful thought by everyone familiar with the zone, and the usual cellular divisions should be eliminated. The outcome should be a considerable decrease in the dispersal of efforts deployed for development and training programmes. Their various media and channels - education, radio, press, education movements, actions by religious leaders, etc. - should focus on a single matter. If the population in the zone is won over quickly the effort can be successful. Once people concerned feel unequivocally that certain methods are of benefit to them, they will apply for training. If the population to be trained does not see the value of the programme, the chances of failure are so high that it would be better to shift efforts onto another field.

The training zone determined according to the main problem and not vice-versa

Geographic, economic and other land divisions are only meaningful if they reflect regions united by identical problems. Regions having the same development problems can be served by the same educational sequences. From the Maldives to the China sea there are coastal strips exposed to the monsoons which have identical characteristics. The development prospects for woodlands, be they Burmese or Indonesian, seem relatively similar. Policies towards shantytowns in many Asian cities can be very much the same from one country to the next. Vast zones, we see, have the same orders of priorities. This justifies large-scale production of training programmes and means for use across large portions of the continent. Techniques for pumping water, for example, provide both concrete solutions and food for thought for the cattle farmer, be he Afghan, Iranian or Pakistani.

Even though orders of priorities may extend across vast geographical zones, they cannot be dealt with jn the same manner everywhere. The framework may apply to large areas, but the exact training curricula must be adapted to the various sub-zones and to each special milieu. The most obvious adaptations concern language and, related to this, the modes of presentation.

Plans for different countries should provide for different progressions through the programme, and the sequence must of course follow the lines set out by the respective national leaders.

A "sequence" is suggested to solve the main problem of each zone

Our efforts must be deliberately diverted from the partial solutions policy and its "piece-meal" system. A different approach should be used wherein efforts fit into a specific line of action. It may be useful to dig a well on a pasture but this well would only be fully exploited if it was part of a programme for pastureland organization and rational use. A self-help housing society may render service but its impact will be limited and its actions hindered if the city concerned does not have proper planning. The same applies to new plantations of tea for example. They certainly bring in returns but, without anti-erosion actions, parallel organization of food crops, installation of equipment for drying and packing, marketing programmes, etc., the conditions of development will not be decisively and durably improved.

We must also stress the interdependence of actions. A new water point in a nomad zone does not only serve to water existing herds but makes it possible to increase the herds. This latter possibility should be taken into consideration when working out well specifications and when drilling. Similarly, to guide young people towards the type of leisure-time activities desired for their development, the urban plan must be designed with large sports fields, open spaces, youth clubs, etc.

Through systematization we can find the logical sequence. For instance, to increase the fisherman's revenue a motor must be added to his boat, which, in turn, makes it necessary to: (a) establish groups (and make them operative), (b) calculate interest and amortization rates, and (c) teach introductory maintenance and repair skills.

A logical succession of operations of this sort is called a *sequence.* One might think that what we have in mind is technical training which closely resembles that provided in specialized schools, or what agricultural extension workers dose out. Quite the contrary, there is no question of teaching a gesture or a procedure without, at the same time, explaining the main reasoning involved, the "why". We are concerned with real *technological training* based on a *tool* or a *technique:* the pulley, the chain and scoop, pump buckets in the sequence of "water use" - or the district lay-out, the measuring chain, water levels, etc., for the "town planning and housing" sequence. Furthermore, the tool-technique duo is always taught with training targets in mind. More than just an attitude is transmitted. Efforts are made to stimulate the imagination, draw up comparisons, experiment with new combinations. The application point is chosen because it can serve both as a necessary ingredient for development and a thought stimulator.

The thought involved is not exclusively technological. It automatically sparks off thought on the general conditions of the society and opens up perspectives on other forms of existing or possible societies. The technological sequence is in no way the negation of general culture - often seen as the negative corollary of modern western civilisation. The true general culture which can serve as a durable foundation for development sinks its roots in technical and economic actions. The technology/general culture dichotomy does not exist in a number of Asian civilisations.

The form, efficiency, liaison with other techniques, history and mythical value of the tool are perceived inseparably. Technology means reflecting about techniques and thus opening the mind, developing rational mechanisms and culture; it is the authentic culture of those who use their tools to transform their milieu.

Technological training through sequences is thus based on the milieu.

This means that techniques or processes should not be grafted onto reality or taught disjointedly as imported messages. Quite the contrary, they should first be presented to show that they are the direct reply to the problems caused by the milieu. Wherever possible, they are to be located in the technical sequences which have already been used. The technical skills of farmers, artisans and shantytown dwellers in certain fields should thus be increased, developed and oriented.

Secondly, these techniques can probably more easily be introduced into the milieu if they have been "domesticated" through, for example, demonstrations by the authorities who have prestige, such as politicians, trade unions or co-operatives, administrators, religious chiefs. One of the most important factors of success is probably developing the proper terminology in the local language for these new techniques.

But the decisive test is whether it becomes possible to combine popular awareness, training and action. If we take the example of the insufficient returns on fruit production around several large Asian towns, we see that the awareness of a problem (such as poor yield, confiscation of profits by middlemen), the explanation of processes (the sap, purchasing from each peasant separately) and of instruments (shears, association) are inseparable from action such as the sale of the tools needed, the improvement of the pruning method and formation of a group.

How to construct a priority technological sequence for development

What was said above may give some ideas as to how sequences should be constructed. Not that our methodology is old and weather-tested. We are merely putting forth proposals, endeavours, hypotheses. Their critical evaluation is seen as something desirable and welcome.

In any case, the division into successive phases, which facilitates the presentation, is arbitrary. The spirit of the operation is such that zonal sequences are constantly reviewed, and local applications are only valid if adapted to the problems and possibilities. A pedagogic subsequence can be changed from top to bottom if the operation coming just before was different than expected and casts light on some social, economic or technical requirements that were originally underestimated.

How to set up priorities and choose techniques

There is probably no optimal method but, rather, processes which are more or less convenient, depending on the subject of the sequence. Two examples illustrate this: one for a group of fishermen, the other for arid and sub-arid regions.

For a group of fisherman

It would be interesting to try and identify the type of planning, technical improvements and education which would be useful to the development of one of these fishermen populations, so numerous and varied, from the Yemen coast to Irian and the Kurile islands.

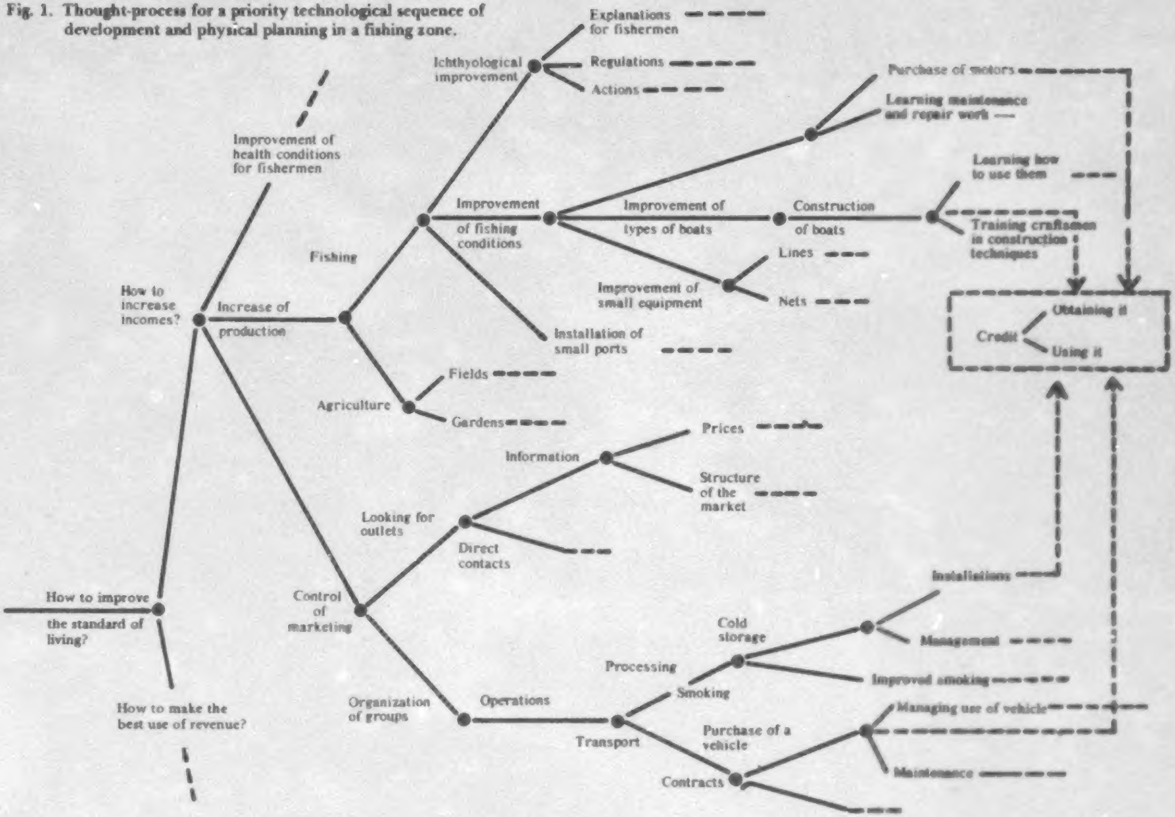
The thought process (Fig. 1) is based on the objective of increasing the standard of living. This requires to increase incomes and make best use of what is and will become available. If we take the first part we see three sub-divisions: improved health can decrease the absenteeism and allow for longer work days; production can be increased by more fishing and by agricultural activities - but the former possibility proves to be by far the most interesting. Lastly, proceeds which hitherto had gone to middlemen, can now be obtained from marketing. If we start by taking one of these three elements, we see that exploring the pure "fishing" activity entails both improving the work conditions (boats, nets, lines), fitting out small ports, and increasing ichthyological understanding.

The mechanism of the operation is unquestionably the most interesting part. The vectors linked in the algorithm are at times "action" - intensive and at other times "training"- intensive.

Training is based on economics (thoughts concerning income, the price of fish, the market profile), or on management (administering the lorries, the refrigerated storehouses), or on group dynamics (how groups operate), or on mechanics (maintenance, repairs).

The bond between these various types of education is not only that all such education strives towards successful completion of given priority sequences, but also that like the actions themselves it is subject to comments, criticisms and thought. Since loans will have to be

Fig. 1. Thought-process for a priority technological sequence of development and physical planning in a fishing zone.


How to improve the standard of living?
How to increase incomes?
How to make the best use of revenue?
Improvement of health conditions for fishermen
Increase of production
Fishing
Ichthyological improvement
Explanations for fishermen
Regulations
Actions
Improvement of fishing conditions
Improvement of types of boats
Construction of boats
Purchase of motors
Learning maintenance and repair work
Learning how to use them
Training craftsmen in construction techniques
Improvement of small equipment
Lines
Nets
Installation of small ports
Credit
Obtaining it
Using it
Agriculture
Fields
Gardens
Control of marketing
Looking for outlets
Information
Prices
Structure of the market
Direct contacts
Organization of groups
Operations
Processing
Cold storage
Installations
Management
Smoking
Improved smoking
Transport
Purchase of a vehicle
Managing use of vehicle
Maintenance
Contracts

contracted, this is the time to learn about credit and how to calculate interest rates, instead of leaving this "privilege" to children who are not very much concerned with the reality and who are told, "Today we will put interest rates on the blackboard" - an exercise which is completely divorced from realities. If, on the other hand, a fisherman agrees to pay interest on a loan contracted to purchase a motor and his production is doubled or tripled sooner, this is a matter of fact which the fisherman will learn—and remember - easily. We see that most fishing sequences have a related educational action. The planning and development diagrams cannot be dissociated from the educational and training diagrams; they are interwoven with each other.

The algorithm does not spring fully "dressed" from the brain of the thinker. The persons concerned, in this case the fishermen, are themselves invited to join in the thinking process. The outline does not end at the paper's edge... other ramifications are conceivable. The dotted lines go beyond the algorithm; many streams of thought lead to the need for credit, the mechanics involved and how to use credit well. This brings out important economic and pedagogic aspects which could be used as the starting point for a new algorithm.

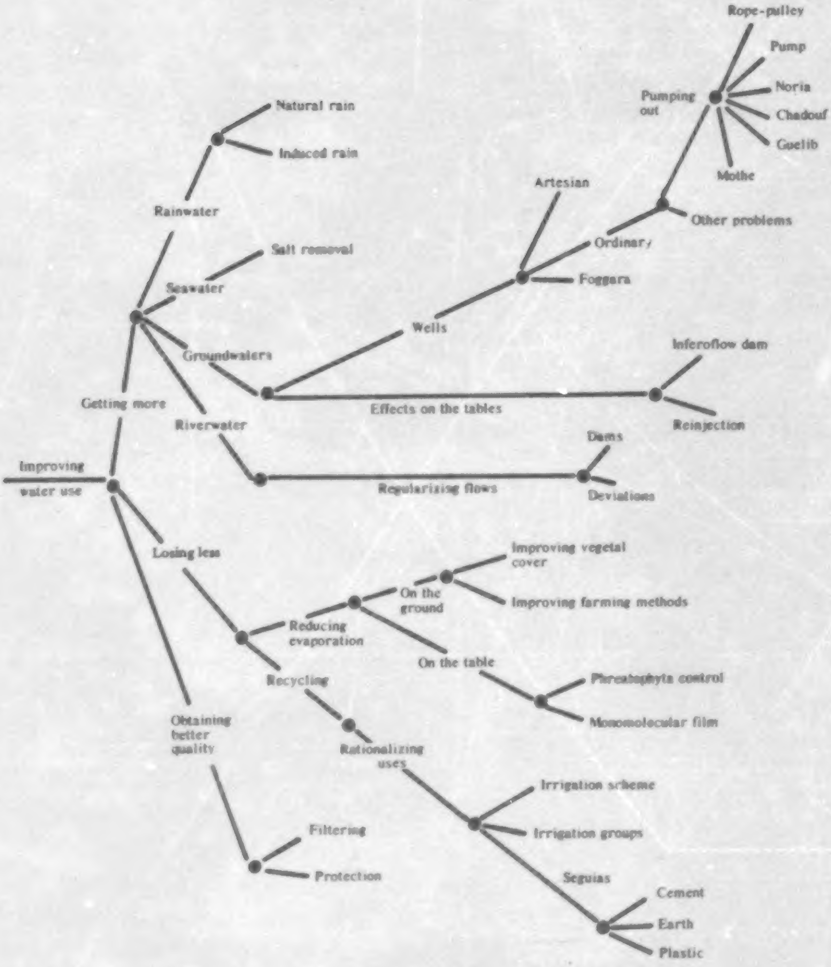
For arid and sub-arid regions

Processes applicable to fishermen obviously can be transferred to many other groups. Among the groups needing special attention, we find the shepherds and the farmers whose crops are subjected to the risks prevailing in zones of insufficient and irregular rainfall.

In all such zones, whatever the national context, the same broad development targets can be identified: creating new water resources, using them for certain crops, improving livestock. The first step is to find the right direction. Everyone must admit that water must be put to better use. Our line of thought is: first, we need more water, second, we have to be sure to waste less and then we want to improve the quality. (Fig. 2)

To obtain more water, several possibilities must be considered: rainwater, seawater, groundwater, rivers, lakes, etc. Obviously, up to the present, most attention has been directed to groundwaters. First of all, the classical drawing from the groundwater tables could be considered. Little thought, however, has been given to the possibility of affecting the table itself using, for instance, reinjection or inferoflow damming techniques and underground construction to prevent the table from flowing into the sea or into a saltwater region.

Fig. 2. Thought-process for a priority technological sequence of development and physical planning in arid and sub-arid zones


Improving water use
Getting more
Rainwater
Natural rain
Induced rain
Seawater
Salt removal
Groundwaters
Wells
Artesian
Ordinary
Foggara
Pumping out
Rope-pulley
Pump
Noria
Chadouf
Guelib
Mothe
Other problems
Effects on the tables
Inferoflow dam
Reinjection
Riverwater
Regularizing flows
Dams
Deviations
Losing less
Reducing evaporation
On the ground
Improving vegetal cover
Improving farming methods
On the table
Phreatophyta control
Monomolecular film
Recycling
Rationalizing uses
Irrigation scheme
Irrigation groups
Seguias
Cement
Earth
Plastic
Obtaining better quality
Filtering
Protection

If the target is to "waste less water", an expensive solution would be recycling. But there are other solutions which are more readily available to the farmers in Asia, e.g. decreasing the evaporation on the ground and the table. To avoid evaporation on the ground, farming techniques could be improved or the earth covered with vegetation. Some current methods of hoeing strip the earth far more than methods used in traditional farming, and hence the water evaporation is much greater and the main crops suffer far more from the water shortage than from the intrusion of high grass. In traditional farming, to curb loss of surface water the first possibility is to control plants which absorb water uselessly. If reed growth spreads, the reeds pump water all day long and then lose the water to the atmosphere. By cutting them, health conditions are also improved since reeds offer a hospitable milieu for several pathogenic agents. We also have the modern method of the monomolecular film spread over the waters of a small dam. A by-product of petroleum is spread as a carpet, one or two microns thick, and considerably reduces evaporation.

This is how a sequence such as the one on harnessing water for arid zones can be developed. Diagrams depicting algorithms can serve to compare the value of extremely modern systems such as the infero-flow dam or induced rainfall with archaic systems such as the chadoufs which existed in the times of the ancient Assyrian Kingdoms. The monomolecular film is discussed along with the control of plants which waste water. This shows the spirit of technological research which does not necessarily favour the most modern methods but bears in mind the gamut of so-called archaic practices as well.

Two attitudes appear harmful and should be avoided at all cost. The first is to be satisfied with what the ancestors preferred. The second is to think that progress means indiscriminate emulation of what is being done in highly industrialized countries.

At this point we might ask where the end of the sequence to be constructed can be found. Perhaps the answer is that there is no end.

The sequence should go on and on since *development and education, which is an ingredient and perhaps even the other facet of the same process, never stop.* If we adopt this perspective we see that educators and development specialists should count on working hand in hand for a long time to come.[1]

How to implement a priority technological sequence

When it comes to the question of how to implement certain technological sequences, we are more knowledgeable than at the designing stage. So many experiments have been carried out in rural regions to stimulate the population, to launch community development and self-help plans, to get new techniques accepted and make changes. There has been ample time to think about the causes of failure.

Fulfilling prerequisites

It is wrong to make a clean sweep and adopt a standard method without acquiring prerequisite knowledge of the ecology, technology and human aspects. It is also essential to have an anchoring point in the zone comprised of people who are willing to regard physical planning action and its underlying sequence as a matter concerning them, and to serve as a bridge between the sequence team and the population.

Staging the right initiators

The success or failure of the project will depend on the choice of sequence team-members. The "right man" does exist, but his title cannot be found in the nomenclatures of governments or international assistance bodies. The main point is to have an "initiator" who has a deep respect for the people and to whom they listen, who can suggest a method and find the support and credit needed to back the villagers or slum dwellers projects.

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1. What will the population have learned after the first year of the sequence? Much more than during several years of primary education. The farmer will not have studied a language other than his own but he will have acquired basic ideas of mathematics, physics, natural science, drawing and above all of logical thinking, inductive and deductive reasoning. Actually, none of the actions can be separated from explanations and reasoning which will make the person understand what he is doing and thus make him do it much better. After thinking about the slope and drainage, the farmer may decide to expand his farming plots a bit. After learning how to think about periods of scarcity and how to calculate the maximum carrying capacity for the pasturelands, the farmer may decide to grow a cereal crop which has a shorter vegetative cycle, so that the irrigated plots can be used to grow fodder to feed cattle during the most critical period.

Finding the right interlocutors

It is usually difficult in the beginning to get a dialogue going. Discussions must be sparked off on questions which are vital to the population. In this manner a general concensus will sooner or later emerge on operations of obvious interest. It would be dangerous, however, to try and bank exclusively on the so-called known leaders who, perhaps, are vested with traditional power. They can sometimes be of great assistance during the contact and discussion stages but thereafter a very specific problem arises: who is the "interlocutor" for development actions in an Asian society?

The impatient young or the learned students have not yet been accepted while the elders, who may still command respect, are too old-fashioned. The soundest criterion seems to be observation during the early operations, e.g., while digging a well, smoothing the ground, setting up a plantation or installing a sewerage system. The most dynamic people will show up during the action phase. These leaders and innovators must become the backbone of the operations during the next phases. Since the whole group will recognize their talent, the community will not object to their being taken a few miles away to attend what we can call "thought meetings" where people from several wards or villages discuss ongoing actions and outlined plans. As an offshot of these meetings, the best participants might be given the opportunity to undergo specialized training which will make them more effective in their home community or even to join the ranks of students for further studies. This will give us a *new process for selecting elites* based on a man's awareness of the collective interest, his capacity to lead his fellowmen and be inventive, rather than on his capacity merely to imitate.

Ensuring local participation

Using the zonal priority sequence, there are numerous possibilities for working out variations based on local conditions. If the inhabitants of villages E, F and G realize that they need a well and that simultaneously many things, such as hygiene, troughs for cattle, irrigated plots, could be improved, the time has come for the initiator to take the village representatives to see a village where installations which fulfill similar needs have been made available. Exactly the same applies to a groups of town-dwellers who want to install a sewerage system; they could go and see wards J and K where this has been done.

If discussions held there are conclusive, an agreement can be worked out between the village-dwellers or ward-dwellers and a governmental organization or even a private undertaking. The basis would be a "give and take" system in which a bit of cement or technical advice is bartered against the farmer's or slum-dweller's participation in the project execution. In many Asian countries experiences of this kind have met with success. There have also been many failures. Most of these were due either to the fact that the operation did not seem really desirable, or to the fact that the village dwellers thought that they could obtain what they wanted, e.g., the well, irrigation, the dispensary, without providing the full counterpart required.

When the contract has been concluded and all the arrangements completed, the work begins, together with what the educator calls "the first lesson". The well has to be sited, for instance, and this has to be done considering the structure of the soil, the depth and size of the groundwater table and the many purposes which the well will serve. At this stage the choice is decisive. Either the "initiator", armed with his technical skills and assisted by a specialist, confines himself to a vague discussion with the local leaders, or he tries to pin-point and enhance local knowledge of the various elements which come into play and then, when the ingredients of the problem have been analysed, to make various combinations showing the advantages and drawbacks of each, finally leaving the choice to the people directly concerned with the project. In the first case the main concern is speed, efficiency and short-term results. In the second, the main concern is permanent training and broadening horizons.

III. By way of conclusion

Certain critical rural areas and certain "infra-urban" neighbourhoods cannot overcome their relative underdevelopment without radically new types of education.

Having said this, either the reader thinks we are on the right track and should go further, explore other possibilities, get the first experiments going quickly, or he thinks that this sort of innovation probably cannot succeed, or should be remodelled or that research should be redirected. If the former is the case, three aspects should be emphasized.

First of all, the outlook adopted here means that social and economic development and training shall henceforth be woof of the same fabric, woven together, "thought" and "done" together. If we embark on this path it can take us far. Then, an approach using priority technological sequences requires broad cooperation between Asian countries having the same ecological zones, similar human groups and comparable development problems. It is indeed up to the national authorities alone to institute sequences, but several states could work together in the designing and preparatory stages. Finally, we must not lose sight of the fact that the "training-action" angle using priority technological sequences means thorough participation in development by the grassroot communities themselves, which may be incompatible with certain types of socio-economic structures.

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Educational Incentive Approaches in Population Planning Programmes

Some of the most immediate and extensive rewards which accrue to a society as a result of reduced fertility come in the area of education. If Asian families averaged only two or three children instead of four or five, better quality free public education could be provided in excess of the present levels which now rarely exceed primary school. If each family had, on the average, two children instead of the present average of four or more, the same education budget could provide for universal free secondary schooling without additional classrooms and with better teacher-student ratios and better teaching materials. Thus, education departments have a stake in, and an obligation to, fertility reduction which may go beyond the provision of population education.

The purpose of this paper is, therefore, to explore some of the possible contributions that educational planners could make to reduce fertility. Throughout the paper, it is assumed that readers subscribe in general to the sort of integrated population planning called for in the Conference Declaration and Recommendations of the Second Asian Population Conference. The ideas presented in this discussion paper are intended to build on the resolutions of that landmark meeting, and quotations from the conference recommendations introduce each major section[1].

> **"The governments of developed and developing countries should encourage and support small family norms taking into account the demographic situation and policies of each country."**

Now that universal free primary education is available virtually throughout Asia, many governments are searching for means of providing free secondary education as well. However, projections of potential student enrolment over the next 15 years, based for the most part on children already born, indicate that the cost of adopting a universal free secondary schooling programme would be too much for most governments to bear. As a result, these governments are looking for means to gradually introduce free secondary schooling over a period of a decade or more.

The point has been made by many scholars that higher education is

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[1] All quotations are from the Conference Recommendations of The Second Asian Population Conference, Tokyo, Japan, 1-13 November, 1972

seen as a family investment in Asia. Thus older children will devote a portion of their earnings to keep a younger brother or sister in school. Families often borrow money and parents suffer excessive hardship in order to keep a bright child in school as long as possible. On the other hand, once educated, these children are expected to support their parents and siblings, especially in old age.

It is no wonder that family planning programme "target couples" often react strongly against the suggestion that they should have small families of three or fewer children. Surveys labour to confirm what parents know already — children are a form of old-age security and an investment in the future. Up to a point, each additional child brings a bit more security to an otherwise insecure situation. Thus, ideal family size hovers around four children, and actual numbers born generally approximate this ideal, when contraception is readily available.

> **"That, if family allowances are given, the system should be designed to avoid encouraging large families"**

In most Asian countries respondents in social science surveys cite economic reasons for choosing a family of about four children. Both small families of three or fewer and large families of six or more children are seen to provide disadvantages from an economic point of view. A small family provides less assurance of old age support and less income or labour for the family. A large family costs more to maintain, especially in regard to education costs. Thus the ideal of four children reflects one of the most viable and proven frames of reference in the world — peasant logic.

Without providing for alternative pathways to economic security, it will be difficult to convince Asia's families to reduce their fertility to the levels now being called for by national leaders and by economic planners. One possibility would be to relieve families entirely of the cost of educating their children by providing free education for each child as far as he or she could go. Not only would this be prohibitively expensive given present economic situations, but fertility might not fall as desired since each family would still want to get its "fair share" of free education for a moderate number of children. In other words, not only is universal free secondary education no panacea for population problems, it might even help encourage high fertility if not promulgated as part of a broader social programme.

We can, therefore, see that expansion of free education in the present is hampered by failure to adequately reduce average family size in the past. Since expansion of free education in the future depends on a nation's ability to reduce family size averages today, it is suggested that a system be established which gives rewards in the form of expanded free education to couples and communities that act in a responsible manner with regard to fertility.

"That some suitable form of social security should be designed so as to provide an incentive to have smaller families"

Because Asian families generally see their children as a form of social security, and because they perceive higher education as the appropriate route to success for their children it is suggested that provision of free higher education might be an appropriate reward for small family size. Such a programme could be designed to provide for the gradual extension of free secondary schooling to all young people in a predictable phased manner which promotes smaller family size.

In general such a plan would work as follows:

1. All children would continue to receive free primary education, which is their right as citizens.

2. All families with four or fewer children would be permitted to receive free education at the same value as that given normally to a four-child family. In other words, if the cost of sending four children through primary school were $2,000 and a family had only two children, they would receive free primary schooling for their children, plus credit for an additional $1,000 in secondary education, giving them a total of $2,000. For a full description of the financial implications of such a proposal, see figures 1 and 2.

3. Secondary level schools would remain open to the especially gifted children of large families and to those who could afford to pay tuition.

Such a system would be quite inexpensive and might even be designed to provide a good deal of savings to the education budget. It is attractive in the Asian system where the family is the smallest social unit (and often the most viable), since it provides rewards to families rather than solely to individuals. Under existing systems, those children fortunate enough to have been born into wealthy families get higher education. Under the proposed system, children born into families which have adhered to government population policy would receive first priority higher education, as compensation to the family for the economic disadvantage of few children.

In general, such a programme would only spend money for results. In other words, if average family size did not fall, no appreciable amount of money would be expended; but if fertility did fall, expenditures would be approximately proportional to the decline. Another economic advantage of such a programme is that actual government expenditures would not have to begin until 10 years or more after the fertility decline began. In other words, in order to avoid any accusation that such a programme was discriminatory against children already born, it might only be offered to newly married couples. These couples could be given coupons, or entries in a savings book, for each year that they had no more than two living children. By the time their first-born child finished the free government primary school, he or she should be 12 or 13 years old; and the couple should be authorized to redeem the coupons or savings book for free secondary schooling. Meanwhile, the government primary education budget would have been smaller because this family had only two children rather than four. In other words, the government would spend on the oldest child the money that it had already begun to save because he did not have the several younger siblings that might normally be anticipated.

Of course many modifications could be made in such a programme in order to accommodate local variation. For instance, a committee could be set up in each community to adjudicate disputes over eligibility. An insurance company, a bank, or the postal system could be used as the agent for holding "savings books" or for issuing coupons. In fact, where people's faith in the government is high, such "savings" systems might be unnecessary. The government might be able to announce simply that "as free secondary schools are opened, first priority for enrolment will be given to children from small families since these families are at an economic disadvantage, and have complied best with the government's family planning efforts". Finally, such a system need not promote traditional academic education. It should be possible to offer vocational courses, trade schooling, or commercial education as a reward for reduced fertility.

It must be firmly stated that this sort of programme does not curtail any existing rights, it merely extends a helping hand to those families who, at their government's urging, have put themselves at an economic disadvantage by having fewer children than sound logic would suggest. This sort of reward might be made even more acceptable by offering it first to those couples for whom additional children are most likely to be seen as investments in the future - the economically disadvantaged [1].

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[1] For a description of an ongoing pilot project to test this proposal, readers are referred to reference number 6 in the bibliography following this paper.

"That the responsibility of providing educational facilities should be distributed between central government authorities and local and regional agencies in such ways as will enable individuals and local authorities to realize the implications of rapid population growth on the cost of educational provisions"

One of the reasons that couples continue to have high fertility, and that communities do not aggressively pursue reduced family size averages is that the population problem, if perceived at all, is seen as quite abstract. This is because the need for reduced growth rates felt at a national level is difficult to translate into a local burden of responsibility. In fact, if central government funds are distributed to local and regional levels based on reported need, inflated population figures and continued high growth rates can be seen by local leaders as advantageous.

In other words, if taxes collected at the local level are turned over to a national treasury and are later redistributed on a per-capita basis, it would pay an area to have many citizens since they would then pay in less, but would receive more. Thus redistributive tax structures can give to local leaders the impression that high population growth rates mean more revenue.

Of course the same factors can apply to taxes which flow back to a community to support education. Past high fertility may result in low per capita income; but this may seem to local leaders to be offset by the increased tax flow-back which results from having large numbers of school-aged citizens.

If communities had to collect their own educational taxes and had to support their own school systems with those taxes, it might be more realistic to expect local leaders to support local fertility declines. Thus it might be beneficial to try to transfer the responsibility for providing secondary or other education to local school districts which would then be obliged to consider present and future fertility in their planning.

Another approach to the same problem would be for the national government to provide local governments with schools and other educational resources based on ongoing fertility declines. Thus a community which was able to reduce its fertility by 1/3 in 5 years might be given funds to construct a new secondary school. A continuing drop in fertility would then ensure that the facility would not become overcrowded in the future. As long as the decline continued the national government might provide staff salaries or some other maintenance costs. If fertility rose, local leaders might be required to begin paying these maintenance costs out of their own community budgets, thereby effectively transferring the cost of high fertility back to the community.

Summary

There are basically three separate ideas presented in this discussion paper. Adopted individually or in an integrated fashion, programmes based on these ideas might yield significant results in terms of fertility reduction. They are: 1) that families with few children are at an economic disadvantage and should be compensated for compliance with government population policy - this compensation to small families could be given in the form of government supported schooling above existing levels of free education; 2) that by transferring authority for collection and disbursement of education taxes from the national level to the community, local leaders and residents can better feel the impact of high fertility on public finances and will act in a more responsible manner with regard to parenthood; 3) that an alternative method of transferring the cost of high fertility to the local level would be for the central government to offer to support local secondary school construction or maintenance, based on the capability of local leaders to encourage reduced fertility.

These three possible policy alternatives are not presented as panaceas for excessive population growth. Neither is it contended that they would fit every situation. It is hoped, however, that they will be discussed extensively and tested for possible adoption.

A final note

Before field trials are undertaken, or policies are adopted, the ideas presented in this paper should be rigorously reviewed by persons from the country or area where they are being considered. At a minimum this review should include discussion of the ethical and political acceptability, the economic and administrative feasibility, and the presumed effectiveness of each alternative. If a particular policy or programme idea is felt to be unfeasible, before it is discarded, it should be scrutinized carefully to ensure that it cannot be further modified in order to become acceptable.

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There are a number of articles and publications which discuss various small family incentive approaches. These articles should be carefully reviewed prior to designing a local experiment or introducing a pilot programme, in order to take advantage of the collective wisdom of those who have already begun to think about or to test these ideas.

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Figure 1. Per family and total education costs (to government) under assumption that average education cost for primary school is $500 per pupil, and that family size is 4.2 children without educational incentive programme

Number of Children in the Family	Number of Years of Free Education (and Cost to Gov't)			Per Family Education Cost to Government	Percent of Families In Each Category	Total Government Cost for Free Education for These Families	Comments
	Primary 1 2 3 4 5 6	Secondary 7 8 9 10	College 11 12 13 14				
1	$500			$500	2	$1,000	
2	$500 $500			$1,000	8	$8,000	
3	$500 $500 $500			$1,500	10	$15,000	
4	$500 $500 $500 $500			$2,000	50	$100,000	
5	$500 $500 $500 $500 $500			$2,500	20	$50,000	
More Than 5	$500 per Child			Average $3,500	10	$35,000	
Average 4.2	Average Expenditure $500 per Child			Average Cost $2,090 per family	100%	Total $209,000 for 100 Families	

Figure 2. Per family and total education costs (to government) under assumption that average family size is reduced to approximately 2.6 children with educational incentive programme

Number of Children in the Family	Number of Years of Free Education (and cost)			Per Family Education Cost to Government	Percent of Families in Each Category	Total Government Cost for Free Education for These Families	Comments
	Primary 1 2 3 4 5 6	Secondary 7 8 9 10 11	College 12 13 14				
1	$500	$500	$1,000	$2,000	10	$20,000	$500 worth of secondary credit plus $1,000 worth of college level credit
2	$500 $500	$500 $500		$2,000	50	$100,000	$1,000 worth of secondary or college credit divided between children
3	$500 $500 $500	$500		$2,000	20	$40,000	$500 worth of secondary credit
4	$500 $500 $500 $500			$2,000	10	$20,000	all children continue to receive free primary education
5	$500 $500 $500 $500 $500			$2,500	8	$20,000	all children continue to receive free primary education
More Than 5	$500 per Child			Average $3,500	2	$7,000	all children continue to receive free primary education
Average 2.6	Average Expenditure $784 per child			Average Cost $2,070 per Family	100%	Total $207,000 for 100 Families	

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